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Gradually our knowledge of acute abdominal conditions has evolved from cases usually referred to as colic down to our present knowledge of these conditions, as to the possible differentiations and specifications of acute abdominal conditions which require immediate surgical attention. Among the list we may mention appendicitis, gallstones, gastric and duodenal ulcer, intestinal perforation, intestinal obstruction, mesenteric embolism and pelvic sepsis.

Deaver has written some of his best papers under the somewhat slangy title, "The Acute Abdomen". This subject, like many other slangy expressions, expresses more than the most elegant sentence.

Under this heading, Deaver says, "The picture, more or less familiar to you all, usually begins with sudden local pain, vomiting and shock, followed by a more or less prolonged period, in which the body is attempting to overcome the shock and to repair the lesion and fight the defensive battle against bacterial invasion".

He says it is rarely that, in any of the acute abdominal conditions under consideration, a warning signal in the form of some more or less pronounced digestive trouble has not been displayed at some time or another of future trouble.

"What ignoring such a signal means is perhaps best illustrated in acute perforating or gangrenous cholecystitis. Only recently William Mayo has called attention to the fact that, in his experience, perforation of the gall-bladder has been one of the most fatal of the different types of acute perforation. He attributes this to the fact that the cases come to operation late because the patients usually have had one or more attacks and surgery is not resorted to until the ominous sign of 'too late' dooms the patient".

In discussing the acute abdomen diagnosis should play an important role. In considering this subject I shall draw very heavily on the writings of Deaver, Moynihan and others. I have little that is new or original. In short, I expect to make my paper an exhortation or summary of what we already know rather than an attempt to bring much that is new to you.

Deaver has recently given a splendid word picture of acute appendicitis which I may quote: "Pain is the initial symptom in acute appendicitis and as a rule is at first referred to the epigastrium or the umbilicus and in about twenty-four hours localizes in the right iliac fossa, the exception being when the pain at first starts in the region of the location of the appendix, which is usually at McBurney's point. It must not be lost sight of that the appendix may be located in one of the several locations other than the right iliac fossa; for example, behind the cecum and ascending colon pointing upward and outward. In suppurative appendicitis, where the appendix holds the latter position, the collection may be mistaken for a perinephritic abscess and opened for this condition. I have seen cases of fecal fistula in the loin caused by this location of appendiceal abscess."

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When the appendix is located in either the false or true pelvis the pain is as likely to be left as right sided, if not more often referred to the left side. Abscess in a pelvic appendicitis will give signs of fluctuation upon digital examination of the rectum and vagina. *When the appendix lies beneath the terminal mesentery of the ileum and points to the left and upward the pain will be referred to the upper left abdomen.*

Pain in the right upper abdomen, in an acute abdominal condition, is not always caused by the gall-bladder, duodenum or pylorus, but may be due to appendicitis, as will be understood from what I have said. Nausea and vomiting follow the onset of pain. Where *vomiting precedes the pain* in an acute abdominal condition the disease is not *appendicitis.*

Temperature rises during the first twenty-four hours, its excursions depending upon the type of appendicitis. Early leucocytosis is always present. The physical examination reveals superficial tenderness at or near McBurney's point, but more important is the deep tenderness elicited by pressure on the inflamed appendix, which, however, is not always at McBurney's point, as has been mentioned.

The appendix may be just internal to the anterior superior spine or near Poupart's ligament, and sometimes it may even be close to the duodenum or the gall-bladder. So that it becomes important to make a thoro examination and to locate the appendix at one or the other of these points before deciding that deep local tenderness is absent.

Rigidity of the overlying abdominal wall is present in many intraabdominal conditions when seen early, also in some forms of renal colic and ureteral colic and many other things.

In appendicitis constipation is nearly always present and is accompanied by much abdominal discomfort from gaseous distention; in such instances the question of intestinal obstruction may arise.

Deaver makes this *difference between appendicitis and intestinal obstruction.* "In intestinal obstruction the onset of pain is gradually increased in severity, while appendicitis is marked by sudden severe and constant pain. In a few cases of acute appendicitis diarrhea is present. In intestinal obstruction the vomitus is at once alimentary, then bilious and then fecal, while in appendicitis it is generally bilious. In intestinal obstruction the temperature is under normal, while in appendicitis it begins to rise. In appendicitis the pulse becomes rapid, the rapidity depending upon the severity of the attack, while in intestinal obstruction the pulse, until the onset of peritonitis, is slow and full. Abdominal palpation is more painful in appendicitis."

Peristalsis is at first excessive, gradually growing less until inhibited. In appendicitis it is normally present except in the immediate neighborhood of the appendix and within the area involved in the peritoneal inflammation, where it is either absent or markedly diminished. In intestinal obstruction, notwithstanding the presence of peristalsis, excessive or otherwise, there is inability to pass flatus.

Holden has written wisely on this subject and he lays particular stress on visible peristalsis in the diagnosis of intestinal obstruction. He believes that nearly all cases of intestinal obstruction, if carefully watched, will show visible peristalsis, One thing I am sure of, that visible peristalsis practically always and unerringly means intestinal obstruction.

In connection with the symptoms just given I would like to call attention to a point of differentiation which I have observed for the past dozen years or more, namely, in acute perforating appendicitis, if the urine is examined, showers of casts are thrown down in such profusion as I have rarely seen in any other condition. We have not found this to be true in perforating duodenal ulcer, and have never found it to be true in acute pelvic suppuration coming from the tubes.

As an exception to the above rule, as well as to the rule of increase in leucocytosis and other serious cardinal symptoms of appendicitis, I wish to call attention to one great exception, namely, acute gangrenous appendicitis of the aged. To illustrate this I can probably best emphasize the point by relating the following case which occurred in my practice recently.

An old man, not particularly rugged, sixty years of age, suddenly developed an acute abdominal condition. General pain over the abdomen, gradually increasing rigidity, gradually increasing rapidity of pulse, later slight rise in temperature, vomiting for the first twenty-four hours. I was called thirty-six hours after onset of symptoms above related. Found rigid abdomen. Patient complained of only a sense of fullness and distress in the abdomen. Decided rigidity of all the muscles of the abdominal wall . Pulse rate about 120.

He was immediately sent to the hospital for further investigation. Leucocyte count showed no increase. On the contrary, the number of leucocytes was slightly below normal, being 5000. Temperature slightly above normal. Patient was not suffering pain but had some abdominal distress. No casts showed in the urine. Notwithstanding the absence of severe symptoms at this time, the patient was urged to be operated upon. The lack of increase in leucocytes caused me to strongly suspect perforating duodenal ulcer.

On opening the abdomen a large fecal concretion was found in the abdominal cavity which was full of free pus. The appendix was gangrenous for a considerable portion of its length and had sloughed, permitting the escape of the concretion. The appendix was removed; drainage instituted at the lowest point. Patient put in upright position. Sixteen hours later the leucocyte count went up to 8000, then to 12,000, which I considered a good omen.

This case is related not as an exception to the rule in patients of this age, for it is not an exception, but it is an exception to the rule of the usual cases of appendicitis, for the aged do not show the profound symptoms in acute appendicitis that we see in people more robust. Whether this is deficiency in defensive elements of the patients, or whether it is due to the fact that the lymphatics of the aged become atrophied and do not carry septic materials readily into the blood stream and, therefore, do not produce the usual reaction manifested by increased leucocytosis and the usual overwhelming of the kidneys manifested by tremendous showers of casts, is not clear. However, it is my opinion that atrophy of the lymphatics in the aged is probably the principal reason for the modified symptoms in cases of acute appendicitis.

In connection with intestinal obstruction and a differentiation of these two conditions, careful inquiry should also be made as to a history of hernia. Within a few days a patient was seen by the family physician who made a diagnosis of acute appendicitis, sent the patient to the hospital and had him prepared for immediate operation. After the morphia had been given he then refused to be operated upon. About six hours later his pain and vomiting came back.

The patient was sent to me and gave a history of right inguinal hernia. On very close and careful examination I made out no hernia. The external ring was well open and no trouble existing. The leucocyte count showed 14,000, too low for severe appendicitis at this stage. We made an incision thru the right rectus, passed the finger towards the hernial opening and found an incarcerated loop. The appendix was inflamed, apparently only by coming in contact with the affected area. The appendix was removed and an opening made for the hernia operation lower down. After the aponeurosis had been split a lump as large as a hen's egg was felt underneath the internal oblique muscle, which proved to be incarcerated hernia. When it was opened a knuckle of intestine about one and one-half inches long was found to be black. After being freed it began to show signs of life and was dropped back into the abdomen, the rectus incision still being open. We then did a radical operation for cure of the hernia, and by that time found that the knuckle had recovered its normal circulation. I think this diagnosis could scarcely have been made more positive without dangerous delay, during which time blood counts might have been made.

One of the very dramatic, altho rare acute abdominal conditions is mesenteric embolism. I have been so unfortunate as to see two cases of mesenteric embolism which have practically destroyed the circulation of the entire small intestine. In one case I made a previous diagnosis; in the other I had to do a purely exploratory operation. The signs on which we would base a diagnosis of mesenteric embolism are the presence of a source of embolism, such as pregnancy, thrombosis elsewhere, valvular heart disease, thrombotic veins in the neighborhood such as following operation. The symptoms are crampy pains in the abdomen, blood stained stools, rapid fall of temperature, and all the symptoms of intestinal obstruction. Prognosis in these cases is very bad (about 94 per cent fatal).

Acute pancreatitis occurs rather infrequently, but it is all too frequent even at that for the comfort of the surgeon, for it is the most terrible of the acute abdominal conditions. The mortality is, I believe, somewhat lessened by operation but, as far as I can gather, about fifty per cent of these cases have died in the past, even when operation has been performed.

According to Deaver, the pain is agonizing and prostrating, and more or less constant, with a tendency to localize in the epigastrium or to radiate to the left. Vomiting is persistent. Constipation obstinate. Diagnosis of acute intestinal obstruction is frequently made. Moynihan sums up the diagnosis as follows: "Patient is inclined to stoutness, antecedent dyspeptic, no characteristics of gastrodoudenal ulcer, symptoms rather of gall-stones, sometimes jaundice. Pain comes on suddenly, associated with collapse of a profound character, limbs cold, pulse extremely poor, rapid and thin, or even hardly to be felt and not counted. Upper abdomen exquisitely tender and resistant. Vomiting early and conspicuous feature. On opening the abdomen blood stained fluids, also patches of fat necrosis."

Acute perforating ulcer is one of the rather frequent acute abdominal conditions. Moynihan, in his inimitable way, has given a very beautiful word picture as follows: "At the moment at which the perforation occurs there is the most agonizing and unendurable pain. The least movement seems to add something to its severity. The tense rigidity of the whole body is in striking contrast to the ceaseless unrest of the patient who is suffering the agony of hepatic colic. The abdominal muscles are found to be in a condition of inflexible rigidity. Over the ulcer the stiffness is of the most obdurate character; one might almost think that a disk of metal replaced the supple muscle. This local increase of general resistance is most definite and distinct, as a rule, and it affords a decided help not only in the diagnosis of the lesion, but in its location. The patient's expression is of one who is terror struck. The approach of a hand to the abdomen for the purpose of examination is quickly resented, and the most piteous appeal for gentleness is made. The breathing is short, jerky, and shallow, and the patient may indeed cry out that he cannot breathe. Tho the patient looks generally ill, with pallid face, staring eyes, and sweating brow, the pulse will be found at the first to be hardly altered in frequency or volume. Unhappily, this fact of the unaltered pulse rate is not generally recognized even now; accordingly delay, which is always serious, may occur. The pulse increases in frequency and decreases in value very soon, but this is not due to the perforation, but to the peritoneal contamination which is the inevitable sequel."

I cannot too strongly emphasize the importance of one symptom which I believe more strongly differentiates perforating ulcer from other acute abdominal conditions than any other, namely, the rigidity of the abdominal wall combined with a fixed position of the patient in decubitus. A patient will sometimes refuse to be moved from the floor to the bed. I have heard of a patient falling to the floor in a street car and insisting upon being allowed to remain there. I have recently had a case which fully illustrates this point of differentiation.

A patient was operated upon for chronic doudenal ulcer located just outside the pylorus. He went home at the end of three weeks in good condition. The next day after leaving the hospital a sudden severe abdominal pain developed in the upper right quadrant. The patient showed a very restless tendency; desired to sit up part of the time; to get up from the bed and sit in a chair; to roll from one side to the other. The abdomen on the right side was quite rigid but not boardlike. The patient was sent back to the hospital and I was very much puzzled. The probabilities all seemed in favor of perforation of the ulcer, except for the fact that the patient refused to lie down, insisted on changing position and rotating from side to side. I called the attention of this feature of the case to my assistants and stated that aside from this one symptom, all the symptoms pointed to perforation of the ulcer. On opening the abdomen an acute infected gall-bladder, with beginning gangrene, was observed. The doudenal ulcer was not active.

Here is a case of a very acute gall-bladder condition presenting all the symptoms of a perforating doudenal ulcer, except the one of fixed decubitus. This point of differentiation is one of the most important because of the fact that in all other acute abdominal conditions the stomach tube should be used, while in perforating ulcer of the doudenum or stomach this is the most dangerous agent we have, as illustrated by the following case:

By coincident the patient's wife had been brought from a distant city for an operation for obstructing ulcer of the pylorus. She had recovered and was in good condition a week after the operation. About 11 o'clock one night a call came to the hospital for me to go at once to the hotel and see the husband. I was not available, so the hotel physician was called and gave the patient one-half grain of morphine in two doses. One of my associates was then called by telephone. After hearing the symptoms he told the nurse to wash the stomach. The next morning when I visited the patient he was in a state of great shock and abdominal rigidity. Unquestionably a perforation of the stomach or doudenum. The abdomen was opened and it was filled not only with the stomach contents but a large quantity of the water, which had been used for washing the stomach, had poured into the abdominal cavity.

Therefore, we are forced to remark that, while the stomach tube is one of the most valuable agents in the preliminary treatment of the acute abdomen, it is absolutely essential to rule out perforation of the stomach or duodenum before using it. Fixed decubitus is by far the most reliable differential point. This, taken with the extraordinary rigidity of the abdomen and other diagnostic points, should enable one to make a diagnosis of perforating ulcer in mose cases.

Prognosis in the acute abdomen depends on preliminary and radical treatment, and the stage at which it is administered. All of the above described conditions demand immediate surgical interference. Probably nothing more perfectly illustrates this than the development of the surgery of perforation of stomach and intestines.

The seriousness and importance of perforating ulcer of the stomach and duodenum were not recognized until Weir, in the year 1900, collected 51 cases of perforating duodenal ulcer reported in the literature up to that time, including one reported by himself. Of that 51 cases operated upon prior to that time, only 7 had recovered, making a mortality of eighty-five per cent. In the light of some of the most recent work on this subject a very interesting feature of Weir's report is that of the 44 deaths in the 51 cases, only 2 patients were operated upon before the end of twenty hours. The patients that had recovered were operated upon 10, 10, 12, 12, 15, 25 and 30 hours, respectively, after the onset of the symptoms.

Mayo Robson reported 156 cases of perforating ulcer recorded in the literature, and gave a mortality of sixty-six per cent. Sixty-one cases operated upon within twenty-four hours after the onset of symptoms gave a mortality of thirty-seven and seven tenths per cent.

Petren reported 135 cases with sixty per cent mortality. Of those operated upon within the first twelve hours fifty-six per cent recovered; during the second twelve hours forty-three per cent recovered.

In going over the entire literature on the subject we find that approximately fifty per cent of the perforated duodenal and gastric ulcers which have been operated upon have recovered. Recent reports, however, are very much more encouraging.

Deaver reports on 36 cases of perforating ulcer of the stomach and duodenum. Of the 36 cases, he refused to operate upon 10, on account of the serious condition of the patient. Of the 26 operated upon, 25 were operated upon before the end of twenty-four hours, with no deaths. One was operated upon twenty-nine hours after the onset of symptoms, and died, giving a mortality of a little less than five per cent.

R. P. Sullivan reports 20 cases of perforating gastric and duodenal ulcer with one death, a mortality of five per cent. The most interesting feature of his report is that the longest time between the onset of symptoms and the operation was fourteen hours, and this occurred in the patient who died. The next longest time intervening was ten hours, the next nine, and the remainder of the series were operated upon between four and eight hours after the onset of the symptoms.

Gibson reports 14 cases of perforated duodenal ulcer with one death. In the one dying the operation was done thirty-six hours after the initial symptoms. Of those recovering, one patent was operated upon two hours after the initial symptoms; 2 in 2.5 hours; 1 in 2.75 hours; 3 in three hours; 1 in three and one-half hours; 1 in twenty-four hours. Gibson contends that patients operated upon within a few hours, say four or five, should not give a mortality in excess of five per cent.

Thus it will be seen that a perforated peptic ulcer, if not operated upon early, is one of the most serious troubles with which the surgeon has to deal. On the other hand, if the diagnosis is made and the operation performed within the first few hours by a competent surgeon the danger is relatively small, regardless of the technic of the operation performed. For instance, Deaver in his splendid reports attributed a great deal of his success to doing a gastroenterostomy with drainage; Gibson has good success without the gastroenterostomy, and finds that the ulcers are mostly cured after perforation; while Sullivan thinks that drainage is entirely unnecessary in early cases.

Deaver recommends the following treatment for perforated gastric and duodenal ulcer:

1. Closure of the ulcer.

2. Plication of the duodenum to obliterate its lumen, and fortification of this area by covering with gastrocolic and gastrohepatic omentum.

3. Posterior no loop gastrojejunostomy.

4. Drainage of the pelvis thru a suprapubic stab wound.

I have given in this paper a great deal of time to diagnosis. Having made a general diagnsis of acute abdomen, differential diagnosis is not so important except for the location of a possible incision. Treatment is the one thing that we must have at once. I am very sure that even with our modern conception of the acute abdomen more people die as result of acute abdominal conditions than from gastrointestinal cancer. The worst treatment of all is the administration of a purgative or opiate before a diagnosis has been made.

To illustrate an old but all too slowly disappearing mental attitude of the profession toward the acute abdomen, I may relate a conversation which took place with a family physician of very good repute within a year. He boarded a street-car opposite a hospital, seeming to be in a good deal of distress. He said, "I have just had a very bad case of intestinal obstruction. Four days ago I saw the case. Severe abdominal cramps and vomiting, no bowel action and no gas passed. I gave four grains of calomel in broken doses, followed by two separate doses of castor oil of one and one-half ounces each, with no results. That night I gave two compound cathartic pills and next morning a dose of salts, still no results. Patient still vomiting and passing no gas. I finally decided that it was impossible to get anything thru his bowel, so called a surgeon today. We have just opened him and found that he had a gangrenous intestine due to intestinal obstruction. I am afraid he is going to die." Can one imagine a mental attitude of that kind today by a family physician who still enjoys a very good reputation as a doctor?

Deaver, referring to the purgative, says: "I hail the opportunity of censuring this accursed practice. The doctor and laity also know the harmful possibilities of the purgative. Would that my voice were strong enough to penetrate to every home in the world, and if heard there, my advice were heeded, in order that this malicious practice might be relegated to the oblivion it deserves. Mothers and all who use the family medicine chest must be made to realize the danger of using a purge in an acute abdominal crisis. In these conditions it should never be used except upon prescription by a doctor who himself is informed as to its dangers."

The severe acute abdominal cases are in the great majority of instances surgical. Therefore, a surgical consultant should be called, or a general practitioner of large experience who is accustomed to handling emergencies. While the modern internist is one of the most useful and finished products of medical science, the very nature of his methods of deduction unfits him for dealing with acute emergencies.

It is true that once in awhile the abdomen of a patient presenting acute abdominal symptoms is opened unnecessarily. It must be admitted that the surgeon has had a greater experience even in this than the internist and is, therefore, more likely to recognize the non-surgical cases. Furthermore, opening an abdomen in this kind of case occasionally does little or no harm and certainly saves many more lives than the policy of waiting.

Before closing my paper I cannot refrain from dealing with the subject of postoperative treatment and postoperative complications. Here the purgative, and in a mild degree the opiate, come in for the same scoring just mentioned. If I can only be forgiven for the misery, pain and death that I have caused by maltreating my surgical patients with the early administration of food and physic, I shall feel that I am very mercifully treated. Formerly we began to give small doses of physic about the end of the second day and continued it for another twenty-four hours, during which time the patient was even more miserable than immediately after the operation. In a certain percentage of cases death was undoubtedly produced by disturbing nature's process of healing. At the present day I know of no up-to-date surgeons who give a physic after an abdominal operation until gas is passing freely. The same can be said as to the administration of food, even in the mildest forms. It is absolutely senseless to put food into the stomach until peristalsis has been established. It simply fills the patient up with gas, creates food for bacterial development and otherwise does only harm.

Postoperative ileus or postoperative intestinal obstruction most frequently follows pelvic operations, and in my experience are very likely to follow operations for removal of fibroids or myomectomy. If in a pelvic operation and particularly a myomectomy, the patient has done fairly well for the first twenty-four hours, becomes more uncomfortable, at the end of thirty-six hours; the pulse rate gradually begins to rise, the patient assumes an uncomfortable, restless attitude, anxious expression of the face; gradually develops nausea and vomiting, first the contents of the stomach, bile and finally intestinal contents; an enema brings little or no results, gradually gas distention increases, it is well to consider seriously the question of postoperative ileus. In fact, in the majority of cases such symptoms as I have related mean postoperative ileus.

So far as I can recall, I have never opened an abdomen expecting to find a postoperative ileus, in which the diagnosis was wrong. But, alas, I have opend too many in which the diagnosis was too late. When in doubt, concerning postoperative ileus, remove some of the stitches at the lower end of the wound, open the abdomen; usually you will find a loop of intestine adherent to the back of the uterus, or possibly to the stump which has been tied, or to a raw surface from which an adhesion has been separated. This loop of bowel will usually be found in a clot or mass of blood. Quickly separate this adhesion from its attachment, slip in a few wicks of gauze and above the gauze a sheet of rubber tissue of several layers. If the diagnosis has been made early the patient will immediately begin to recover. If you have delayed until dark spots have developed in the intestinal wall the chances are usually about "fifty-fifty". In such a case much depends on the thoro removal of intestinal contents above the obstruction, thru one or more incisions.

The extent of the dark spots will depend not only on the length of time the patient has been sick, but also upon the previous treatment. If the patient has been physicked or fed, the dark spots will be much more extensive. On the other hand, if the stomach has been washed from the very beginning, and the abdomen covered with hot packs, the tendency to destruction of the wall is much diminished. In other words, you can often transfer on acute intestinal obstruction to a sub-acute, altho practically complete, by flushing the bowel, washing the stomach and the use of hot packs, provided, of course, there is no strangulated or gangrenous intestine.

SOME EXPERIENCES WITH PERFORATION OF THE STOMACH.*

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In presenting this subject we draw from a series of fourteen cases of perforation of the stomach which it has been our fortune to treat or to have been connected with. From this series we have chosen five cases whose histories we beg to submit.

Case 1. J. H., lineman, age 42. Family history, negative. Past history. Had had some indigestion and stomach trouble for several years. Had not lost weight. Was very active, a large man and did hard work. Had had two or three attacks, severe pain of short duration in epigastric region and diagnosis of cholecystitis or gall-stones made.

Present history. Spent the day in fishing on North Fork River. Lost lunch and nothing to eat entire day. Grew ravenously hungry and while walking back to camp passed thru a garden near a ranch house and ate some raw radish tops and raw onions. Ate very hearty evening meal when reached camp. Two or three hours later was seized by excruciating pains in epigastric region, radiating to right side and back. Vomited freely but pain not relieved much. Sent for doctor who reached him the next day. Brought to hospital after a ride of twenty miles in buggy late at night. Pain was not severe but very marked tenderness on touch or movement over upper abdomen and board-like rigidity. Patient wanted to rest and refused operation until late next afternoon. Temperature had risen to 102° rectal.

We made incision to right of median line. Found localized adhesions of viscera in pyloric region. Separated carefully and found normal gall-bladder but upon separating adhesions about pyloric region found perforation of stomach about two and one-half inches proximally to pylorus and near greater curvature. Some food particles and secretion were walled off about perforation. Closed with two rows of Halstead sutures, reinforced by great omentum. Rubber tube drainage. Uneventful recovery.

Case 2. Mrs. H. L., married lady, age 38. Family history, negative. Past history. Had stomach trouble. No loss in weight. Had had severe attacks, pain of short duration and diagnosis of gall-stones made.

Present history. Was preparing for an operation when developed a very severe attack, pain confined mostly to region of gall-bladder. Doctor treated expectantly for five days. Patient did not improve much and we were called in consultation.

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Patient had temperature of 104°, pulse 130, deeply jaundiced. Tender, rigid, dome abdomen and we made a diagnosis of emphysema gall-bladder.

Operated by usual incision and found viscera well adherent about gall-bladder region. In separating adhesions found a collection of fluid with large masses lymph and perforated ulcer near pylorus and gall-bladder adherent and closing perforation. Closed perforation and drained. Temperature dropped and in three days was normal. Uneventful recovery.

Case 3. J. H., traveling salesman, age 28. Family history. Nothing to note.

Past history. Had had very much trouble with stomach for five years. Severe attacks of pain and vomiting. Had vomited blood. Tarry stools. Had diagnosis made of gastric ulcer by several consulatants and operation was recommended.

Present history. Was on one of his regular trips and was seized by excruciating epigastric pains; vomited blood copiously. This was in a small country town and he was attended by local doctor. He improved in two days and came home but was very weak and pale and showed effects of severe loss of blood. After being home for a few days all pain and tenderness subsided except over right iliac region.

This increased in degree and we were consulted. A mass was easily palpable but no fever. We diagnosed a perforation with closure of same by adhesions. Patient was very weak and could not eat much.

We used infiltration anesthesia and opened over mass in iliac region and drained a collection of fluid filled with masses of lymph. By careful feeding patient grew stronger and three weeks later laparotomy was performed, using usual incision for stomach work. We found two ulcers near pylorus, one of which had perforated but had been closed by omentum and transverse colon. Patient made an uneventful recovery and now has gained forty-five pounds in weight and has better health than at any time of life.

Case 4. J. S., merchant for two years. Previously saloon-keeper. Age 34. Past history. Had had some stomach trouble and severe attacks of "lumbago."

Present trouble came on one evening after a hearty meal. Patient lifted some very heavy barrels, severe pains seized him in back and decided he had one of his usual attacks of lumbago. Pain was very severe during night and could not sleep. Next day a doctor was called who diagnosed lumbago and gave him a hypodermic of morphine and dispensed some opiate mixture. Patient was living out in a small mining camp about ten miles from any doctor. It was late in autumn and the roads were almost impassable. Patient did not improve much and was quite sick. Had attacks of vomiting which seemed to relieve him. About two weeks later sent for another doctor who looked him over and told him he had some abdominal trouble and recommended, if not better in a few days, to be removed to a hospital. In a few days felt some better and was able to sit up in bed. Could take a little liquid food but suffered more or less discomfort while food was in stomach. Bowels were constipated and abdomen distended. Ten days later commenced to have severe pains or cramps in abdomen and distension increased. Sent for doctor who had to give him opiates to secure relief and he was brought from the mining camp on a cot in a spring wagon over miserable roads. He was very weak after trip and had to have opiates almost continuously.

We were called in consultation and found a dome-shaped, rigid abdomen. Pulse rapid and bad quality. We decided surgery was only relief. Patient was operated on thirty-two days after first symptoms. Usual incision made near median line, right side. Viscera were all adherent with great masses of lymph covering and agglutinating them. Entire abdomen seemed to be filled with fluid. When this escaped, stomach presented and over anterior wall a perforation was present from which fluid and gas was escaping. We closed with a couple of purse-string sutures. Put stab tube drainage in pubic region to cul-de-sac and tube drainage above. Patient rallied nicely and lived for four days. Was comfortable, never requiring opiates after operation.

Case 5. J. B., miner, age 42. Past history. Negative. Always had good health.

Present history. On way to work one evening, when an associate with whom he had had some difficuty waylaid him and shot him with a 38 caliber revolver. The bullet entered left side of chest near mid-axillary line near eighth rib and come out about two and one-half inches to right of spinal column. Attending physician, in absence of any vomiting and no marked tenderness over abdomen, decided bullet had followed rib around body. Patient developed a little fever at times and occasionally had cramps over abdomen. He was confined to bed for about two weeks and then in wheel chair part of time. Developed a marked bronchitis and coughed a great deal. Took food but often caused discomfort. He seemed to be losing strength and every five or six days would develop severe cramps over abdomen and at these times would vomit freely. Would develop a great deal of fever. After a few days of abstaining from food would feel better and improve. Got so he could walk about. Forty-six days after shooting, patient developed a most serious attack. Fever rose to 105°, pulse 160 and intermittent at times. He vomited freely. After suffering for two days we were called in consultation. We found a rigid, tympanitic abdomen with an accentuated prominence in epigastrium. While case seemed desperate we advised surgery as only relief.

Usual incision for stomach region. Viscera all adherent to each other and parietal peritoneum.

With a little separation, several gallons of dark yellow fluid escaped, in which were masses and floculi of lymph. On left side of fundus of stomach there were firm adhesions between parietal peritoneum and stomach, indicating complete closure of a perforation. In working toward right side we separated liver from stomach and found a large perforation in posterior wall near lesser curvature. Making an opening thru gastrohepatic omentum, it was with great difficulty we closed the opening because of location and thick, friable, and lymph-covered tissues. Put in tube drainage and patient to bed on right side and abdomen. A very stormy convalescence for eight days, when he commenced to improve. There was a continuous drainage from wound for almost five weeks. The character of discharge showed that our closure of wound in stomach had not held entirely and a gastric fistula was present but gradually decreased and healed and patient now enjoys splendid health and is vigorous enough for another bout.

The series arranged according to causes shows: Two traumatic, all recovered. Eleven peptic ulcer, of whom eight recovered, three deaths. One gastric cancer. Recovered from perforation, died seven weeks later from carcmonia.

In our series twelve were males, two females. The youngest was 22 years of age, and oldest 67. Average age, 41.

All cases of peptic ulcer were confined to anterior wall of stomach. Both traumatic cases involved both anterior and posterior walls. Seventy per cent of cases of peptic ulcer were single or solitary; in 30 per cent of cases ulcers were multiple.

From our limited experience we found more ulcers near lesser curvature than greater. We believe this can be explained by the fact that the stomach contents are more acid in this part of stomach and circulation of this portion of stomach wall less vigorous. The food taken into the stomach, due to the upright posture of man and action of gravity, is confined continuously in region of stomach near greater curvative, thereby more completely neutralizing acid contents.

In contemplating the mechanics of the contents of the upper abdomen, one is impressed by the fact that the liver, omentum, transverse colon, intestines, parietal peritoneum and stomach itself are all factors which, under the guidance of inherent vital processes, immediately, in case of perforation or threatened perforation under the stimulation or irritation, gather about the area and throw out barriers to prevent spread of infection. Many cases diagnosed as appendicitis oftentimes show little pathology about the appendix at time of appendectomy. We are far from pleased with results when patient comes to us again complaining of many of former symptoms. They can be relieved only by gastric surgery or attention. Many cases diagnosed as appendicitis are small perforations of gastric or duodenal ulcers which nature closes and cares for, or they are cases of chronic ulcers threatening perforation. Some of our fatal appendix cases are not fatal because of appendiceal pathology but due to undiagnosed stomach or duodenal perforations.

Mayo estimates that 70 per cent of perforations of stomach close under natural processes. To get 100 per cent results it is imperative that prompt diagnosis be made and closure be done as soon as possible, not to exceed a period of ten hours. Mortality will be low on all cases surgically closed during first forty-eight hours. After this period elapses results are bad. In our series of cases the three fatal cases had existed for seven, sixteen and thirty days respectively before efforts for relief were given. The case whch existed for seven days was a merchant, 67 years of age and his age was no doubt a deterent factor.

In the fatal cases everyone was relieved by operation, not due to fact of efforts at closure of perforation but to drainage being instituted and the escape of the irritating fluid contents of abdomen. In those late or neglected cases there is one outstanding fact which seems to dominate the whole situation and that is the marked asthenia.

For good results be on the alert to diagnose perforation early. It is better to err and make an exploratory incision than be in doubt. With prompt diagnosis early surgical closure will follow. We operate early, not so much to prevent leakage but to prevent general peritonitis which we all fear and hope never to have after our surgical measures. Barring bacterial infection, the liquid contents of stomach are highly irritating to the serous membrane, the peritoneum. In these cases the appearance of the peritoneum was something like that about the stump of appendix when we use carbolic acid to cauterize and some areas, where it has come in contact with the peritoneal surface, have not been neutralized by the alcohol. Add to these marked chemical irritative properties of the escaping fluid of a perforation the activities of pathologic bacteria, and we have a situation that will tax the vital resources and armamentarium of any living animal organism.

INTESTINAL STASIS.*

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The majority of individuals suffering from intestinal stasis are blots on the pages of preventative medicine. In going over our records we find many cases coming to us complaining of a variety of symptoms, in whom, after careful examination by laboratory, clinical and roentgen methods, we failed to reveal any thing except a more or less well marked intestinal stasis.

Some authorities a few years ago made the statement that idiopathic epilepsy was caused by the bacillus epilepticus which they claimed to have isolated from the colon of persons afflicted with this disease, and claimed many cures by removal of the colon. While this theory has been greatly modified, yet no one can deny that many persons who have intestinal stasis exhibit certain nervous phenomena of a neurotic type.

Recently we have seen some twenty cases of dizziness and other neurotic symptoms which have been relieved when the intestinal tract emptied itself properly. Histories of your patients will often show that as children they were constipated, poorly nourished and thin. This is true more especially of females.

Extensive studies have been made of ptosis and stasis in infants and children, but for the most part men have been content to say that this condition is hereditary and have made little effort to regulate habits, prescribe diet or in any way attempt to build these asthenic children into the sthenic type.

The growing youth is too busy to pay much attention to the activities of the intestinal tract, and should be impressed with the necessity of taking regular time from play each day to attend to this very necessary function, otherwise he will at times go for two or three days without evacuation of the bowel. As a result of this and the lack of proper foods in proper proportions, we have sooner or later all sorts of disorders in the intestinal tract and attendant on them systemic and metabolic disturbances.

Atwater and others have shown the relative amounts of the different classes of food stuffs and the number of calories necessary for the growth of the active child. In the large Eastern pediatric clinics, Still, Spargo and Echolz have painstakingly collected histories which give the foods consumed by children. Their findings showed the principal articles of diet to be tea, coffee, bread and soups. While this diet does not hold in our western cities, there is very little difference.

While the hereditary tendency toward certain types of body habitus exists, yet this may be to a certain degree overcome. With these facts in mind and with definite evidence of ptosis at hand, from our own study and from evidence presented by others, we are attempting to show that it is possible to influence the growth and nutrition of children. To date we have examined one hundred cases, ranging in ages from five to fourteen.

The method of examination is as follows: A barium meal, consisting of fourteen ounces of Bulgarian milk and three ounces of barium sulphate, is given forty-eight hours before they present themselves for examination, and at time of examination another meal is given. Flourscopic examinations are made recumbent and erect, the change of positions of the viscera noted, the size, shape, and position of the stomach noted, and the amount of barium retained in the colon from the first meal.

A history of the child is taken, paying special attention to its diet, habits, and general state of health. In cases where possible a description of the habitus of the parents is noted. The child is weighed, measured, and the type of body habitus noted.

CLASSIFICATION.

Cases examined 100.

Barium present at twenty-four hours 97.

Barium present at forty-eight hours 57, showing stasis in over 50 per cent of the cases.

In twenty-six of these cases there was, as near as is possible to estimate, at least from four to eight ounces retained in the colon, observation at sixty hours. Ptosis noted in 62 per cent. This percentage was increased to 73 in childern over nine years of age.

The majority of children examined by us were poorly nourished, round shouldered, and showed evidence of fatigue on exertion, in addition to intestinal stasis. While diet and regular habits are essential to their improvement, muscular exercise is the greatest factor. Since many of these children do not tolerate strenuous exercise, we have devised simple procedures, which bring into play the muscles of the neck, trunk, and extremeties, gradually increasing the exercises as the child develops. We find that dumb bells, Indian clubs, etc., make the exercises less irksome. Much valuable work is being done along these lines by communities thru different organizations, but they do not reach all classes of children.

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*Read before the Forty-Sixth Annual Meeting of Oregon State Medical Association, Portland, Ore., June 3-5, 1920.

A recent illustration of what muscular exercise, regular habits and a good wholesome diet will accomplish was well demonstrated in the young men who saw service. We might add that the results obtained along these lines in the older men were astonishing. What could we expect with a similar program started early in childhood.

The cases we have been able to follow for a period of three years have shown a marked improvement in their general state of health. While we hope at some future date to present more complete data on this subject, the results obtained thus far impress us with the immense importance of the work. We feel that it is far better and more economical to prevent this condition in children than to wait until it has rendered educated and useful men and women only partially efficient, before an attempt is made to relieve them.

From a study of our series and the evidence presented by others we have drawn the following conclusions:

1. That persons who show intestinal stasis complain of many vague symptoms, and are too often classed as neurotics.

2. That many of these patients have shown evidence of varying degrees of malnutrition, constipation and lack of development since childhood.

3. That, while hereditary is an important factor in the growth and development of the child, we may influence the growth and development by careful attention to exercise, diet and habits.

4. That physicians should interest themselves more in the activities of the various enterprises which have as the reason for their existence the production of healthy men and women.

CECAL PATHOLOGY.*

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Owing to the prevalance of appendicitis, we are in the habit of considering a suggestive symptomatology in the cecal region as appendicitis. If a general understanding of possible pathology and unusual anatomy in this region is not borne in mind, the operator may be confronted with one of many unusual conditions, the proper treatment of which will necessitate a resection of the terminal ileum and ascending colon with an anastomosis. Therefore, it behooves the surgeon to bear these possibilities in mind so that the patient may receive proper treatment, if the diagnosis of appendicitis be in error and a more formidable pathology be presented.

Appendicitis with adhesions and exudate, particularly the retrocecal form, frequently presents difficulties that are not readily met and considerable ingenuity is needed to give creditable results. In the diagnosis of acute appendicitis we can do no better than follow Murphy's dictum that pain is the first symptom. This pain in the beginning may be referred to the gastric region by means of the splanchnics. Second, gastric disturbance, nausea and vomiting. The vomiting with uncomplicated acute appendicitis is never severe or frequently repeated, being once, twice or possibly three times. Third, fever, always some degree of temperature. Fourth, local tenderness in McBurney's region. Fifth , leucocytosis. The advent of the disease occurs in just that way. If nausea and vomiting occur before the pain, put a question mark after the appendicitis diagnosis.

Visualize the appendix (a hollow tube). Any inflammatory disturbance sufficient to produce symptoms causes tension. This tension causes pressure of nerves and interference with the lumen, hence pain. The pressure on the nerves of the appendix causes reflex disturbances and by means of the splanchnics gastric symptoms. Absorption of inflammatory products produces the fever. The tension of the tube and peritoneal irritation cause tenderness and lastly defence of the infection, leucocytosis.

Jackson's veil and other forms of adhesive membrances have caused considerable comment and additions to the literature. This entire subject for practical purposes can be fairly well summed up by remembering that the colon on the right side of the abdominal cavity is a late acquisition in the development of the embryo. The late rotation of the colon to the right side of the body and the descent of the cecum from the hepatic position after the formation of the parietal portion of the peritoneum produce attachments in many cases that are veil-like. The amount of descent and rotation likewise add peculiarities that are not frequently encountered. In the vast majority of cases, however, the arrangement is quite constant. The variation in the embryologic arrangements frequently develop anomalies of support, hence the different veils and membranes, forming the at-one-time much talked of Lane's kink and Jackson's veil. Practically, if no mechanical obstruction exists, these anomalies should receive scant consideration.

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*Read before the Thirty-first Annual Meeting of Washington State Medical Association, Tacoma, Wash., Sept. 16-17, 1920.

A variation of the embryologic migration, rotation and fixation of the cecum give the etiologic basis for the condition known as mobile cecum. Migration and rotation occur but fixation is lacking or is very loose, so that we have a cecum and ascending colon with a mesentery comparable to the small intestine or sigmoid. This freedom of movement permits the cecum and ascending colon to twist upon the more fixed point, namely the hepatic flexure. The volvulus thus formed carries with it the symptomatology of intestinal obstruction. Volvulus at this point is frequently partial. The onset of pain and symptoms of obstruction subside often after the use of enemata and the patient recovers.

In this class of cases a history of one or more of these attacks often antedates the terminal attack. The blood supply being endangered by the volvulus, the bowel loses its tone and greatly dilates, so that a distention local in character occupying the region of the cecum and ascending colon is quite suggestive of the condition. Gangrene of the bowel generally occurs, if the case is not operated on quite early and necessitates resection. This is a rare form of intestinal obstruction and carries a rather high mortality, unless an early operative interference is carried out.

Anomalies of the cecum and ascending colon must be borne in mind. After rotation and migration the cecum may not descend but remains in this position, so that any pathologic condition would be referred to the right upper quadrant of the abdomen. A patient presents himself with a complaint of abdominal pain and distress often chronic in character with a greater or less amount of deterioration in health. On examination a distinct mass is discovered in the McBurney region. A consideration of many pathologic entities will immediately arise. First, malignancy. This is more prevelent in the large intestine than in the small. Of the different types of carcinomata the adenocarcinomatous form is the more common, the malignancy of which depends upon the amount of connective tissue incorporated in the growth. The growths occurring in the large bowel show a late metastasis as compared with the small intestine. This is due to the fact that the lymphatic system is more poorly developed in the large than in the small bowel. While advancing years is usually associated with carcinoma, adolescence and early adult life is no bar to the growth. So that in any obscure abdominal condition malignancy must be considered. The statistics of large numbers of malignant growths of the colon show that the incidence is greater in the male.

The rectum heads the list in frequency, followed closely by the rectosigmoid and ileocolic junctions. Some reason must exist for the occurrence of malignancy in these special portions of the alimentary tube. At each of these locations a distinct contraction or narrowing of the tube exists which acts as a sphincter, controlling the onward movements of the fecal current. The increased and repeated traumatism, acting as a source of irritation, is no doubt responsible for the malignant changes occurring in the cecal region.

Carcinomita can be expected to do two things: First, break down and bleed, and, second, owing to the fibrous stroma of the growth, contract and distort the lumen. The local symptoms that are manifested naturally are based on these two properties. The growth by irritating mucous glands produces increase of mucous secretion which becomes stained with the bloody purulent discharge from the ulcerating surface. This naturally in greater or less amount presents itself mixed with the fecal movements. The lower down the growth the earlier and more pronounced are these signs. As the intestinal tube is narrowed by the uneven contraction of the fibrous stroma of the growth, the lumen is naturally constricted slightly at first but progressively. To compensate for this the muscular coats hypertrophy and no difficulty results from the increasing stenosis until the constriction becomes very small. Symptoms of partial obstruction now occur. Obstructive symptoms occur earlier at the portion of the intestinal tube where the fecal contents are the more solid. Colic pains; increasing constipation is often alternated with diarrhea; the fecal masses becoming blocked irritate the bowel, causing an outpouring of fluid which, with the aid of the bacterial digestive action, soften the solid mass. As the peritoneal surface becomes involved, local tenderness and soreness develop. Frequently the small remaining opening may become blocked by a larger piece of feces than usual. This precipitates the more severe symptoms of acute obstruction and often brings the case to a focus. The general symptoms of a cachetic nature supervene early, so that the general condition of the patient will often arouse the first suspicion of carcinoma even before decided local symptoms are manifest. However, a tumor mass may present itself on physical examination with few local symptoms. The favorable locations should always be carefully investigated. Increased peristalysis is frequently seen in the hypertrophied and dilated afferent portion of the bowel, especially in thin abdominal wall patients. In many cases the tumor mass is existent but is not palpable on account of its location.

Having considered the possibility of malignancy, one's mind would turn to possible tuberculous trouble. Intestinal and cecal tuberculosis is very prevalent in cases of pulmonary tuberculosis, as demonstrated in the autopsies of 1,000 tuberculous deaths, where 566 local cecal lesions were found. The primary form is more frequent in children, the hypertrophic form extremely rare. Between two and three hundred cases coming to operation have been reported in the literature. There are two distinct forms of cecal tuberculosis: the mucous, ulcerative form, occurring in the cecum and lower ileum and the hypertrophic, confined to the cecum alone. The mucous ulcerative form is nearly always secondary to pulmonary tuberculosis. The swallowing of the tuberculous sputum and the irritation of the cecum from the bowel contents being injected into the cecum from the ileum, plus stasis, accounts for the location. The ulcers are usually transverse to the lumen of the bowel, owing to the fact that the lymphatics drain in that direction. Perforation is rare on account of the adhesions that result from the irritation. Strictures result in about 25 per cent of these cases.

The hypertrophic is a primary affection, ingested food conveying the tubercle bacilli to this locality. The disease begins in the submucous layer and early affects the lymphatic structures. The process is slow with a great deal of inflammatory reaction, the walls becoming enlarged and thickened, which is principally confined to the submucous and subperitoneal structures. The cecum becomes irregular in outline. The mucous membrane is free from ulceration. Even with the abdomen open considerable difficulty exists in differentiating this condition from carcinoma. The muscular layers are infiltrated with round cells, considerable sclerosis exists and the glands at the ileocecal junction are enlarged.

The onset is slow and occurs mostly in the second and third decades of life, constipation alternating with diarrhea. Attacks of pain (colic) with traces of blood in the stool are characteristic of the disease, the presence of blood being particularly found in the mucous ulcerative type, the amount varying greatly. Abdominal tenderness and gastric disturbances such as nausea occur. Exacerbations with latent periods of improvement are frequent. Gradual stricture of the cecum with narrowing of the ileocecal valve bring about the symptoms of partial and often complete obstruction. On palpation the presence of a tumor, hard and sausage-shaped is found in the cecal region. The blood findings are those of tuberculosis anywhere in the body. The urine constantly gives a diazo reaction. Often abscess formation occurs and in neglected cases fistula.

Often abdominal complaint in the elderly will lead to the discovery of a distinct mass in the cecal region, rather doughy in consistency. Some question regarding its etiology may arise but large stimulating enemata may remove the tumor mass and thus clear up a questionable diagnosis.

Sarcomata of the cecum of the small round-celled type have been reported. This tumor, two and one-half inches, has arisen from the submucous layers and developed retrocolic, separating the layers of the mesocolon. While suspicion might be aroused as to its nature, a microscopic section would be necessary to classify it. Intussusception, tumor of the mesentery, greater curvature of the stomach, gall-bladder, kidney, chronic inflammatory exudates, cold abscesses, diverticulitis, cecal ulcers, gummata and pelvic growths may aid in clouding cecal pathology but in most of them, with careful study and the aid of the contrast meal, light can be thrown on the problem.

THE LABORATORY AS AN AID TO DIAGNOSIS IN GASTROINTESTINAL DISEASES.*

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In diagnosing gastrointestinal diseases four lines of investigation are necessary for accurate and thoro

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*Read, May 3, 1920, before King County Medical Society, Seattle, Wash.

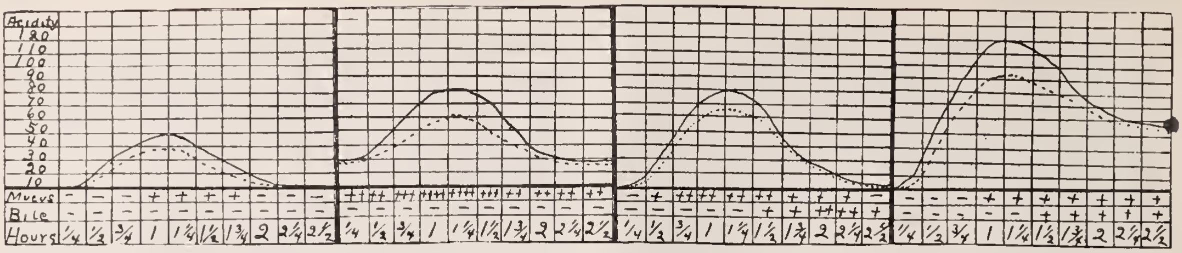

Fig. 1 Fig. 2 Fig. 3 Fig. 4

Fig. 1, normal acid curve; fig. 2, gastric ulcer type; fig. 3, duodenal ulcer type; fig. 4, reflex type. Continuous line represents total acid, the dotted line HCl.

work. These are the history, symptoms, laboratory findings and x-ray. To say that one branch of investigation is of more importance than another would be to deceive one's self and to make false diagnoses. True in one case the x-ray may give positive findings and the laboratory negative, in the next the laboratory may be positive and the x-ray give no diagnoses. In another case the symptoms may be atypical, yet the history be very significant. The keen diagnostician is the man who is able to correlate the different findings and give them the proper relationship in the sum of the whole condition, neither exaggerating this symptom or minimizing that one.

With this thought in view we shall discuss laboratory methods as an aid to diagnosis, ever bearing in mind that it is only one part of the routine of a diagnosis but a very necessary part. What I shall say will apply to the man who is doing general work, not the laboratory man or the specialist. It is my purpose to make this branch of investigation so simple and easy that any physician can do the work in his office, if he cares to, without the outlay of extra equipment or expense. If he does, he will be able to do more thoro work and also reap a better income.

The old method of giving a test meal and then removing it exactly at the end of one hour, and basing the diagnosis on the one analysis, has become greatly in disfavor in recent years. There is too large a factor for error in one examination. Yet, on the other hand, to take a sample and make an examination every fifteen minutes over a long period of time is too tedious and complicated for the ordinary office and it is not necessary.

I have here compounded a chart from many sources, being the result of many investigators. It represents a normal curve, the continuous line showing the total acid and the dotted line the hydrochloric acid. The other charts represent the gastric ulcer type, the duodenal ulcer type and the reflex type. You will notice that there is a steady rise in acidity for the period of about one hour after eating. The only difference is in the degree of acidity and the rapidity of rise. It is evident, however, that this is one and the same thing, for if the curve rises high it has to rise rapidly. After about one hour conditions are different, and we want to know the acme of acidity, time of highest acidity, emptying time of stomach, time of presence of bile, if any, blood and mucus.

For this reason several frequent tests are very necessary till the stomach is empty. Then the tube may be allowed to pass into the duodenum for samples of a mixed bile and pancreatic fliud. The latter procedure I consider of equal importance with the examination of the stomach contents. I shall not discuss that phase of the laboratory examination at this time.

Patients do not understand the value of accuracy of a test meal, when you let them eat outside the office. As the quantity and the time will vary, and as they will eat things you do not want them to eat, I have adopted the habit of having all test meals eaten on a tray in the office. I usually give two soda crackers and a glass of water. If indicated I have a few prunes or raisins eaten in the preceding meal. Usually, however, you will pick out the remnants of the preceding meal without this trouble.

In making the laboratory examination, we need a small quantity, not more than 5 cc. This is enough for two analyses to check each other. Speed and accuracy are the things to be aimed at. If you have liquid contents it is not necessary to filter, as it only takes time. (All text books say you must filter). I have repeatedly experimented with this by filtering and not filtering large numbers of samples. The difference was so slight as to make filtering unnecessary. In fact, one extra drop of the sodium hydroxide reagent will more than offset the filtering.

A hand pipette of 5 cc, graduated in tenths, is more convenient than a burette and takes less desk room. I always combine the two indicators, the dimethyl-amido-azo-benzol and the phenolphthaline. If you take 2 cc. of stomach contents and 5 cc. of water to add volume, you multiply the number of tenths of hydroxide used in the pipette by five equal degrees of acidity—first free HCL, then total acidity. To illustrate. If it takes five-tenths for the first indicator and eighth-tenths for the second, that would mean 25 for free HCl and 40 for total acidity. This whole procedure takes only half a minute of time and is more accurate than to fuss around with a burette and stand and other equipment.

For blood examination filter paper soaked in a saturated glacial acetic acid solution of benzidine is best, all things considered. It must not be touched with the fingers and must be reasonably fresh and kept in the dark. In making the test the paper is soaked in the material to be tested, or else it may be spread on the paper. The paper is best placed on a white porcelain dish, then a drop of hydrogen peroxide is added to the smear. Blue or greenish blue color will develop in a few seconds. You should not wait over a minute. This will show blood in dilutions of 1 to 2,000.

The examination should always include the search for bile as in certain cases its presence is of great importance. This may be done either by inspection or some of the color tests. The presence or absence of mucus must be noted, also the particles of broken down mucous membrane or flakes from tumors. The microscopic examination for bacteria yeast cells and broken down tissue is a most necessary procedure.

Among other things we must not omit the Wassermann test, as a positive Wassermann will clear up the diagnosis of many complicated cases. In fact a syphilitic may have almost any gastrointestinal symptoms, and the whole thing clear up on the proper antisyphilitic treatment.

To test the motor function power of the stomach is important in every case. Some empty too soon, others stagnate. It is just as much pathologic to empty too soon as too slowly. We can tell this by observing the stomach contents. If there is reflex irritation from any cause outside the stomach, it generally (if the pylorus is patent) empties quickly. Of course, obstruction, such as carcinoma, makes it pass out slowly. I think we depend on the x-ray too much for the motor function power of the stomach. At the end of five or six hours, if the stomach is empty, we say the motor power is normal. The facts are it may have been empty several hours sooner. The six-hour examination by the x-ray would show no distinction in time of emptying. This time, however, can be told exactly by the stomach analysis.

In cases of infections of the gall-bladder and of suspected diseases of the pancreas, it is very useful to study the bacteriology of the upper duodenal tract. In normal individuals on an empty stomach the normal duodenal fliud is almost free from living microorganisms. Altho there are visible many bacterial cells, for the most part these are dead germs and those that will survive enough to be grown on a culture medium are generally Gram-positive cocci. These have been studied extensively by W. J. McNeal and also A. F. Case, of New York. They generalize in these words: "In various gastrointestinal disturbances the number of cultivatable microbes in the duodenal fluid is markedly increased. These organisms are of several different varieties: bacilli, cocci, yeast and branching thread forms." Pure cultures of typhoid bacilli have been isolated from the duodenal fluid.

In conclusion, let me say the interpretation of the findings in the laboratory is not a cut and dried thing. High acidity does not mean the same in every case. When the free acid is very high, we frequently say hyperchlorhydria which means nothing. Hyperchlorhydria is a symptom and not a disease. Absence of acid does not mean cancer. Achylia has no free acid, also in severe cases of chronic gastritis there is no acid. In fact, the highest acidity that I have seen has been in cases of reflex irritations or nervous manifestations, such as chronic appendicitis, gall-bladder troubles or hysteria. I have purposely omitted many things useful and necessary in laboratory methods and technic, because I did not wish to make this paper too long and tedious. One thing must be ever present in our minds, that one line of investigation, the laboratory, is not enough to form a clear judgment for a diagnosis. It must not be taken out of its setting, but must be considered along with the history, symptoms and x-ray.

I have repeatedly found it of importance to have the duodenal fluid examined by a bacteriologist. It is a simple matter to get the fluid without contamination. A gelatine capsule which has been soaked in 95 per cent. alcohol for twenty-four hours is picked up with sterile forceps and fitted over the gold tip of the sterile duodenal tube. With the gelatine capsule in place the capsule is dipped in shellac and dried under cover several times. This is kept till needed for use. The sterile sealed up tube is passed on an empty stomach with a little water. The coating of shellac prevents the gelatine capsule from being dissolved in the stomach. Some have advocated soaking the capsule in formaldehyde solution. This makes it too hard, so that it will not be dissolved in the alkaline duodenal fluid. After the capsule has been in the intestinal tract some time (we can tell this by the slight pull on the tube, the same as when fishing one knows when he has a fish on the hook), air is blown by a syringe into the tube. This throws the undissolved parts of the capsule out and prevents clogging of the tube. As much fluid as needed may be easily withdrawn. Massaging on the gall-bladder will frequently aid in getting a better sample, if cholecystitis is present

I have repeatedly isolated the offending germs in cases of inflammation of the bile tracts. Several investigators have reported very useful information in diseases of the pancreas.

PITUITARY POLYURIA OR DIABETES INSIPIDUS.

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Within the past few years our conception of the etiology of polyuria and diabetes insipidus has undergone a "thought-change into something new and strange," to paraphrase Shakespeare. Beginning with Claude Bernard's classical experiment (1849) that puncture of the fourth ventricle caused polyuria, there followed the discovery by Magnus and Schaefer that injection of pars intermedia (the secreting portion of the posterior lobe of the pituitary gland) produced diuresis in animals. But this is not consistent with Cushing's finding that removal of the posterior pituitary lobe induced polyuria. He affirms Schaefer's conflicting results were due to the effects of anesthesia. And further Mazfeldt (*Boston Med. and Surg. Jour.* p. 644, 1916) found that injection of extract of the posterior pituitary gland in humans always induced diminished urinary secretion, irrespective of age, sex or disease Moreover, innumerable clinical findings show that this result is invariably obtained.

The most recent physiologies still teach that posterior lobe injections cause diuresis—based on older animal experiments (Burton-Opitz, 1920). Experimentally, injuries to the pituitary lead to diuresis, and also polyuria is not infrequently seen in practice with cerebral tumors and fractures of the base. Infections of the brain are most common causes of diabetes insipidus, rarely tuberculosis, and most often syphilis.

Diabetes insipidus is a rare (12.2 in 100,000 cases) chronic disease in which the passage of enormous quantities of low spec. gr. urine (3 to 20 qts.; 1,000 to 1008 sp. gr.) more at night, thirst, weakness and dry skin are usually present. Less often pains in the lower back radiating into the legs, irritability, impotence and plus knee jerks may occur. Polyuria refers to the symptom alone, and is not necessarily chronic nor due to the specific cause under consideration. Diabetes insipidus is either idiopathic(?), secondary to or symptomatic of disease, injury or tumor of the central nervous system. Basal syphilis is the most frequent cause. Aneurism, tumors of the belly and tuberculous peritonitis also induce polyuria. Diabetes insipidus may be familial, occurring chiefly in males, about half the cases between ten and twenty-five years of age. In idiopathic cases there may be no inconvenience except the drinking and passage of large amounts of water. Less than half recover but good health may continue indefinitely—even for fifty years.

Etiology. Osler (1916) stated diabetes insipidus was probably due to vasomotor disturbance from local irritation (abdominal disease), or thru functional or organic irritation of the brain, causing constant renal congestion. Cushing affirmed that the hypophysis secreted a hormone activating the kidneys.

According to our present knowledge diabetes insipidus is a chronic polyuria due to hypofunction of the posterior pituitary from disease, injury or growth. In an unpublished paper by Larson (Mayo-Clinic), on thirty-three cases of diabetes insipidus, he states that this disease may be differentiated from other polyurias by the fact that it is at once checked by the injection of pituitrin. Also it has been shown that pituitrin raises the renal threshold for water so that it does not pass out in diabetes insipidus but causes hydremia, and even edema, if large amounts of water are taken. The pituitary hormone may act directly on the kidney thru the blood, indirectly thru other organs of internal secretion, or thru the sympathetic system to alter the blood supply or action of the renal secreting cells. In hypofunction of the posterior lobe, according to Cushing, there are increased carbohydrate tolerance, subnormal temperature, slow pulse, low blood pressure, drowsiness and weakness. All these I have observed in diabetes insipidus, except the first which I have not investigated.

Treatment of diabetes insipidus has hitherto been a failure, except when due to syphilis. Ergot, opium, bromides, valerian and iodides are hackneyed remedies. Now we have a specific which produces truly dramatic therapeutic results. Medicine has no parallel to it except morphine in relieving pain. But, and we use a large BUT, the relief is temporary, and, so far as I have discovered in literature, no recorded case of permanent cure by it has been substantiated. This, a priori, might be expected since the underlying cause is not removed by the remedy—the subcutaneous injection of extract of the posterior pituitary lobe.

Pituitrin, surgical, represents both the pars intermedia and the posterior lobe and is said to be twice as strong as the obsteric pituitrin. In diabetes insipidus thirst and polyuria disappear miraculously within about an half hour after injection of pituitrin. The urine becomes more concentrated within one-half to two hours. Pallor, a fall in blood pressure, dilation of the pupils, and sometimes headache, may also occur, and an immediate desire to defecate. Half a c.c. twice daily is usually more successful in its relief than 1 c.c. once a day. The unfortunate fact exists, however, that pituitrin has usually no therapeutic action given by the mouth. I find only two writers, Mazfelt (Ibid), who claims good results by feeding fresh beef pituitary gland, and Engelbach who found one case of polyuria remained well on continued pituitary substance (P. D.) gr. 10-30 t. i. d. by the mouth.

I wish to report two cases of diabetes insipidus in which treatment with pituitrin gave the most immediate and theatrically favorable results.

Oct. 10, 1910, Mr. O. P., kindly referred by Dr. Johanson, male, 33. He had suffered from encephalitis for four months previously. Had irregular temperature during this time and for several days there was difficulty in swallowing, fluid returning thru the nose. Distressing thirst and polyuria occurred after the first month. Sometimes as much as a gallon was passed in a night. Now his eyesight is poor and he is still running fever, sometimes as high as 101° F. Has been in hospital a month. Is dizzy at times and feels as if he would fall. There are tremors of the hands interfering with eating and writing. Mental apathy and expressionless face are marked and great weakness is evident. Pupils are sluggish to light, and retinal vessels are tortuous and injected. The nerve head is blurred, and the retina edematous. Vitreous is hazy and filled with opacities. No vertigo, nystagmus, falling or past pointing on injecting cold water into the ears No disturance of vestibular apparatus or deafness (Dr. Chase).

To summarize: Slow onset with fever, lethargy, eye and pharyngeal palsies, general weakness and paralysis of the 5th, 8th and 9th cranial nerves, dizziness, tremors, altered eye grounds, loss of 25 lbs., apathy, poor sight and diabetes insipidus. Urine, sp. gr. 1002, no albumin or sugar, four qts. in twenty-four hours. Blood pressure, 100-72. Neg. Wassermann and tuberculin tests. No history of syphilis, leukocyte count 10,000. x-ray of sella not made. Thirst incessant and patient rises four to six times each night to micturate.

Within half hour of giving 1 mil. of surgical pituitrin, all thirst and polyuria left patient, who slept all night. This favorable result continued for some weeks, while the patient took daily doses of pituitrin but the symptoms at once returned when the drug was stopped. The case of diabetes was due to infection of the base with encephalitis. The pituitary was involved with hypofunction and polyuria.

Case 2. J. W. V., male, 42. Kindly referred by Dr. J. S. Thomas. Slow onset of polyuria for one and a half years. Constant weakness and tired feeling so that he gave up work as hotel clerk for a year. Micturated two to six times each night and hourly during the day. Dry skin, thirst not pronounced. Considerable pain in back and thighs. Passes now three quarts in twenty-four hours. Spec. gr. 1008, no sugar or albumin. Chronic tonsillitis and three abscessed teeth and marked pyorrhea. Had tonsils and infected teeth removed and pyorrhea treated. No other physical abnormalities found. No history of syphilis and negative Wassermann. Blood pressure, 110-80. Sella not x-rayed.

Patient injected one-half mil. pituitrin twice daily. Polyuria stopped at once and patient sleeps all night. Has been at work again as night clerk. After about a month was able to stop pituitrin and has improved so much that he is practically well and has gained about 7 lbs. Sleeps all night.

I regard this case as an infection of the pituitary body from the teeth and tonsils and his cure is due to removal of the source of infection rather than to the pituitrin which, however, gave instant and complete relief from symptoms.

I advised x-ray of the sella but advice not accepted. If the patient should relapse, I would advise lumbar puncture for Wassermann test, or else the use of arsenobensol treatment for syphilis.

NORTHWEST MEDICINE
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Devoted to the Interests of the Medical Profession of
the Pacific Northwest

Editorial Office, 1011-12 Cobb Building, Seattle, Wash.

JANUARY, 1921

EDITORIAL

SEASONABLE CASUALTIES.

It has often been noted that there is a marked periodicity in the appearance of certain ailments and certain forms of accidents. This fact has been recently emphasized by the annual report of the King County coroner, in Seattle, the details of which are doubtless duplicated in all of our cities. He calls attention to the fact that an excess of accidental deaths occurs during the winter months, practically the same number being reported each year during December, January and February. This is assigned to such natural phenomena as wet weather, slippery pavements, dark and foggy days which are conductive to automobile and street car casualties. It is noted that the cold weather produces more fires which add to the death roll. It is observed that the greatest number of suicides appear in December and January, especially concentrated in the latter part of the former and the early part of the latter months. during the time of the holiday season, this period producing more of such deaths than any four ordinary months. It is suggested that this season seems to cause a depressing effect on some people, resulting in a lack of interest in a continuation of life.

The fact that more drownings occur during July and August is not at all surprising, in consequence of the bathing season, while sudden deaths from disease are said to be more frequent in January, February and March, when it is claimed the vitality is at its lowest stage. The report states that most motor casualties occur in the early hours of the morning, when joy riders are hurrying home, regardless of wet pavements and other occupants of the streets. It is interesting to observe that industrial accidents are more frequent in the late morning and late afternoon, when workers become tired and more careless about machinery. These interesting facts are suggestive of the necessity for the average individual to be observant, if he wishes to escape sudden calamity. How often does one hear the expression: "It was his own fault, nobody else can be blamed for his carelessness."

THE LEGISLATIVE SEASON.

Again the biennial gatherings of our legislatures are at hand. So far as we have learned, no medical legislative program is contemplated before our Northwestern legislatures. Nevertheless, it is probable that many measures will be introduced, in which the medical profession will have a vital interest. As the result of continual agitation and the presence of receptive legislators, the Washington legislature of two years ago passed a series of acts legalizing the practice of every known form of cultism and freakism. They were so liberally disposed that they even made provision for the recognition of any future form of bizarre practice that might enter into the mind of man. On the principles that "if you give him an inch, he wants an ell", the representatives of the different cults may be expected to foster bills, granting them certain encroachments in the field of medical practice, in excess of the restrictions with which they were originally contented.

The usual flood of measures may be anticipated from the antivaccinationists, the antivivisectionists and all other antagonists to public health measures, supported by the subtle and united efforts of the christian scientists, who never come out in the open and function under their own name but conceal their identity behind the skirts of so-called health or freedom leagues, while their liberal contributions help to sustain a vigorous lobby for influencing the minds of legislators. The results of the elections in California and Oregon last fall were most refreshing and encouraging to the majority of citizens who believe in assisting public health measures for maintaining and preserving the health of the people. There has never before appeared, at least on the Pacific Coast, such a powerful and united combination of the above mentioned destructive forces as attempted in these states to abolish vaccination, vivisection and other public health procedures. The elections proved that, when the people at large are called upon to exercise sane and rational judgment upon measures to preserve the health of themselves and families, they surely believe that principles developed by years of scientific investigations and experience are to be trusted rather than the vociferous claims of ignorance and fanaticism. We do not believe the present legislative sessions will throw into the discard any established public health measures, since the general public is becoming better informed and at any time may be called upon to pass judgment on questions affecting the public health.

NEWSPAPER ADVERTISING FOR PHYSICIANS.

The question whether or not physicians should advertise themselves before the public is one which is periodically presented by the lay press. This has been the topic of recent editorial discussion in one of the leading dailies of the Northwest. It was based on statements in a copy of the "Northwest Surgeon's Guide", the official publication of an instrument house. The editor in question lays great stress on the fact that questions affecting the public health should be presented for the consideration of laymen as well as physicians and surgeons, overlooking the fact that articles of that character continually appear in lay journals for the purpose of acquainting the public with facts concerning the origin and spread of epidemics and the means of preventing contagion. The intimation that this sort of information has not already been extensively offered to the public is an indication of ignorance or oversight on the part of the writer.

The following quotation, on which is based his editorial, doubtless discloses the basis for his interest in this subject: "To educate the public to know and to act would not only be a great boon to the people themselves, but would lift the medical profession to the highest respect in society. To do this and to do it quickly and thoroughly, perhaps no better method lies before them than a carefully directed propaganda through paid space in the newspaper columns". Why in the name of all that is philanthropic and generous in the history of the medical profession should doctors be called upon to pay for space in the newspapers for disseminating information exclusively for the benefit of the public, the practical application of which would be to decrease rather than increase their revenues. Instead of being urgêd to pay for the privelege of imparting such knowledge, they might more justly receive compensation for transmitting such information. The editorial writer hands out some enconiums on the medical profession, that it merits the highest respect for its unselfish work in preventing disease and prescribing rules of hygiene and thinks the work done by sanitary scientists would be a wonderful monument to any profession.

Like so many lay writers on medical ethics, the editor entirely misses the reason for physicians' objections to newspaper advertising. It is well known that the physician who publishes his own valiant deeds is to be classed with the quack who announces his exclusive and wonderful ability to cure the ills of mankind, not for the benefit of the unfortunate but for his own enrichment. In consequence of such dishonorable and false assumptions of knowledge, from time immemorial the medical profession has discountenanced any form of personal advertising. It is not a veiling of modesty, as the editor intimates, which prevents doctors from discussing their unselfish efforts to prevent sickness. Physicians in a position to do so freely and constantly instruct the public in questions pertaining to public health and hygiene, and there will never be any hesitation on their part willingly and unselfishly to impart such information.

MEDICAL NOTES

OREGON

Injunction Against Sanitarium. Last month the State Board of Health brought injunction proceedings against the Winchester Sanitarium Company, of Roseburg, a hospital which is under construction for the treatment of tuberculosis. The suit was instigated by adjacent property owners on the ground that it will prove a nuisance and a menace to the health of the community. It is alleged that refuse from the hospital will contaminate the river from which Roseburg receives its water supply.

Large Gift for Medical School. The medical department of the University of Oregon is to be the benefactor of a large educational foundation of New York. The figure is not named but is reported to be in the neighborhood of $300,000, on condition of a like sum being raised in the state. The money is needed for completing the second wing of the medical school. Dean Dillehunt states that last year as many students were turned away as attended the school in consequence of lack of space. The great need, also, is an orthopedic hospital, besides other features to complete the usefulness of this institution.

New Secretary for Board of Health. At a recent meeting of the State Board of Health applications were considered from persons desiring the appointment as secretary. It is hoped that the legislature will increase the appropriation so that a larger salary than $4,000 may be paid. Since three new members are shortly to be appointed to the board the selection of the new secretary will be left to the new board.

X-Ray Outfit in Storage. The new county hospital is under construction at Portland. When the county commissioners recently ordered electric apparatus, they included the x-ray outfit for use at the hospital. Since it is probable that the latter will not be completed for about two years. the newly purchased x-ray apparatus has been stored in the basement of the county court house Thus a $9,000 investment and a useful x-ray outfit will be rendered useless for quite a period of time.

Portland City and County Medical Society held its annual meeting at the Hotel Portland last month, attended by 200. The following officers were elected for the ensuing year: President, Dr. Paul Rockey; Vice-President, Dr. E. B. McDaniels; Secretary, Dr. F. H. Coffeen.

Medical Missionary in Java. Dr. L. H. Bittner, of Portland, who has practised in that city for the past year, leaves this month to take up his life work as a medical missionary in Java. After several months spent in studying the Dutch and Malay languages at Batavia, he will have charge of the construction and management of a hospital of one hundred beds at Bindjei, Sumatra, under the supervision of the Methodist Episcopal Church.

Dr. D. H. Pederson who recently practiced at Ilwaco, Wash., has settled for practice in Gresham.

WASHINGTON

Physicians in Legislature. Dr. W. M. Karshner, of Puyallup, will be the only medical man in the Senate at this session, while Dr. H. S. Fulton, of Asotin, will be the sole physician sitting in the House. This is in contrast with the last legislative session which was destitute of any medical representative.

Enlargement for Hospital. The Pulmonary Hospital, at Riverton, has recently been enlarged by the construction of a building of hospital type. called the infirmary. It is intended for advanced cases of tuberculosis and those needing special treatment. It contains twenty beds, thus increasing the capacity of the hospital to seventy-five. A new scientific building is under construction for laboratories and the x-ray department.

Community Hospital Planned. A committee has been appointed by the business interests of Kennewick for the establishment of a community hospital to supplant the two privately maintained institutions of that city.

Remodeled for Hospital. The Wright residence of Yakima has been remodelled into a general hospital for the Yakima Hospital Corporation.

North Pacific Surgical Association held its annual meeting last month at Spokane, with attendance of about sixty members from the Pacific Northwest. An interesting program was presented. The officers elected for the ensuing year were: President, R. E. McKechnie, Vancouver, B. C.; Vice-Presidents, Drs. J. B. McNerthney, Tacoma, W. B. Holden, Portland; Recorder, Dr. E. O. Jones, Seattle; Sec-Treas., Dr. A. W. Baird, Portland; Councelors, Drs. H. R. Storrs, Vancouver, B. C. and J. H. O'Shea of Spokane. The next meeting will be held at Vancouver, B. C.

Snohomish County Medical Society held its annual meeting at Everett last month, fifty-five physicians being present, including twenty from Seattle. An interesting program was presented by physicians and others.

Appointed to Regular Army. Dr. R. A. Allen, of Tacoma, has been appointed Major in the Medical Corps of the U. S. Army. He has been assigned to Fort Worden. Dr. J. R. Henderson, who formerly practised in Seattle, has been appointed to the Medical Corps of the U. S. Army, with the rank of Major.

Destitute of a Physician. The only physician of Yacolt left last month after three years of practice, at the same time closing the hospital. Here should be a field for some of the excess practitioners of the country.

Dr. E. D. Sawyer, who has recently practiced in Asotin County, has located for practice in Wenatchee.

Dr. Edmund Klemke has returned for practice to Port Gamble, where he was formerly located for a number of years, after three years spent in army service.

Dr. A. A. Nichols, of Sylvia, N. C., and lately of Kennewick, has located for practice at Sedro Woolley.

Dr. R. S. Weyer, who formerly practiced at Yakima, has located at Ephrata.

Dr. E. M. Asheley has moved from Creston to Spokane. This change leaves the community without a physician or drugstore.

Dr. F. R. Fischer, of Spokane, has gone to New York, where he will spend a year on the staff of the Nursery and Child's Hospital.

IDAHO

Dr. G. S. Murphy has settled for practice at Nampa. He formerly practiced at Amarillo. Texas. During the war he served in the U. S. Medical Corps in France, receiving a Major's commission.

New Hospital Superintendent. St. Luke's Hospital at Boise has received a new superintendent, Miss Emily Pine of Providence, R. I. For the past twelve years she has been superintendent of different hospitals in Massachusetts.

Osteopath Convicted. The Department of Law Enforcement last August brought suit against H. W. Sawyer, an osteopath of Twin Falls, for practising surgery without a license. The law of Idaho does not recognize the right of osteopaths to perform surgical operations or prescribe medicinal remedies. The defendant admitted he had performed major surgical operations. Last month he was convicted by a jury which deliberated an hour. The case will be appealed to test the validity of the law.

OBITUARIES.

Dr. F. E. Bolby, of Medical Lake, Wash., died Dec. 9 at St. Luke's Hospital, Spokane, at the age of 53, as the result of liver disease of several months duration. For the past six years he had been resident physician at the state custodial school. He was a graduate of the University of New York Medical School. For five years he was physician at the State Hospital, at Willard, N. Y. Later he was physician at the county hospital at Spangle.

Dr. Walter S. Wallace of Newport, Wash., was found dead in the forest of the Priest River region on Dec. 21. As a result of an autopsy a diagnosis was made of fatty degeneration of the heart. He went on a deer hunting trip and his failure to return resulted in the finding of his body. He was 38 years of age. He was the first white child taken to Wallace, Ida., which was named for his grandfather. He first practiced medicine in Spokane and moved to Newport ten years ago. During the war he served for eighteen months with the Canadian army, also taking part in the Salonki campaign and on the Austrian front.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

The Endocrines, By Samuel Wyllis Bandler, M. D., F. A. C. S., Professor of Gynecology in the New York Post-Graduate School and Hospital. Octavo of 486 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $7.00 net.

In this work Bandler has attempted more especially to indicate the importance of internal secretions as bearing upon diseases of women but in doing so he has covered the whole ground. to a considerable degree, of accepted disorders of the endocrine glands. One of the primary laws in regard to internal secretions is that the disturbance of one gland upsets all the others. Thus the writer shows that in the menopause it is not so much the direct loss of ovarian secretion as the indirect result of its loss in causing over or underactivity of the other endocrines. In the menopause there may be hyperthyroidism, with mental and vascular excitability, or underactivity—with corresponding mental depression. So, again, the pituitary gland may be disordered with underactivity and obesity (anterior lobe), or hyperpituitarism and glycosuria, Also, in the menopause, the adrenals may be over or underacting with high or low blood pressure. Bandler supplies not only ovarian extract but extract of the other glands which appear to be undersecreting. He regards an abnormal and severe menstruation or menopause as signs of unbalance of the endocrines.

In relation to pregnancy the secretion of the placental gland is said to abnormally act upon the glands of internal secretion. Thus the author postulates that eclampsia is the systemic result of placental aggression, that mania and psychoses are the psychic evidences of placental aggression, while postpartum asthenia it due to the exhaustion of the endocrine glands by the stimulant action of placental secretion, and a mixture of various glandular extracts are to be employed in treatment.

In the beginning we spoke of the "accepted" disorders of the glands of internal secretion. But this is the crux of the whole matter. How much may be acceped as final in this most complex and still nebulous subject? One intensely interested in the subject naturally inclines to overestimate the casual factor of endocrines in all diseases. Thus, among signs of disorder of internal secretions a host are mentioned, such as that "shaggy eyebrows attract attention to the anterior pituitary and adrenals", "yellowish color of the teeth calls attention to the adrenal cortex", "hair on upper lip, on the face and chin, suggests adrenal cortex action, as do moles", etc. It requires a very clear head and good judgment to discriminate between the tares and the wheat and it is probably too early in the day to do so. However, great strides have been made in our knowledge of the endocrines and certain definite and unquestionable therapeutic effects have been obtained, unrivalled in brilliancy and dramatic effect by any other curative means. The book supplies at least much food for thought, even if it can not wholly be digested and absorbed without causing. some mental colic. It is a valuable contribution to the subject.

WINSLOW

Laboratory Manual of the Technic of Basal Metabolic Rate Determinations. By Walter M. Boothby, M. D. and Irene Standiford, Ph. D. Section on Clinical Metabolism. The Mayo Clinic, Rochester, Minnesota and The Mayo Foundation, University of Minnesota. Octavo volume of 117 pages with 11 Tables and Charts of explanation. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $5.00 net.

This book is the most complete guide to basal metabolic rate determinations appearing to date and will probably do much to improve the rather loose technic. This is given in minute detail, regarding the gasometer method and that of Haldane for gas analysis. Also the calculation of the basal metabolic rate is given step by step. Like most of the publications of the Mayo Clinic it is based on facts gleaned from a huge experience. The Tissot and Benedict methods are compared, the latter being found rather cumbersome for their work, and is stated to have other disadvantages. When one considers that the Mayo Clinic is now averaging thirty-two cases a day one sees the wisdom of its adopting the Tissot method. An appendix is added, containing tables for facilitating calculations, as logarithms for reducing volume of gases of standard temperature and pressure, Dubois height-weight chart, and standards of normal metabolisms for males and females of different ages.

VON PHUL

Surgery, Its Principles and Practice for Students and Practitioners. By Astley P. Ashurst, A. B., M. D., F. A. C. S. Second Edition Revised, With 14 Colored Plates and 1129 Illustrations, 1202 pp. Price $10. Lea & Febiger, Philadelphia and New York, 1920.

This second edition of a work, which has an established position among text-books on general surgery, has been increased in size by sixty pages, much new matter having been included. Reconstructive surgery is the new name for chapter nine and includes much work which before had been in other chapters. Naturally one expects to find new matter related to the application of war experiences in civil practice. The author's experience in military surgery has enabled him here to make an excellent selection. Chapters which have been newly rewritten are those on gun-shot wounds, shock, empyema and surgery of the pancreas. Like its predecessor the work presents in a pleasing and attractive form the principles of surgery, the abundance of illustrations, few of which are not original, embellishing the text in a particularly appropriate and helpful way. It remains an excellent book for students and practitioners. FORBES

A Text-Book of Physiology, for Students and Practitioners of Medicine, by Russell Burton-Opitz, M. D., Ph. D., Associate Professor of Physiology, Columbia University, New York City. Octavo Volume of 1185 pages with 538 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $7.50 net.

This is a most excellent treatise on physiology, presenting the subject in a sufficiently detailed form but avoiding the prolixity required by quotations of experiments, and by only touching on the chemical biology so far as consistent with a clear understanding of the subject. The reviewer has been especially interested in the functions of the pituitary gland in relation to its control of urinary secretion. Burton-Opitz affirms that the secreting portion of the posterior lobe (pars intermedia) causes a diuretic action. Its action, however, appears to be the reverse, as Matzfelt has found that pituitrin injected into humans always causes a diminution of urinary secretion, and this is borne out by its extraordinary action in at once stopping diabetes insipidus or, more properly, pituitary polyuria. Mazfeldt believes that the anesthetic given animals in experiments produced the polyuria.

In regard to the function of the spleen, as one notable surgeon has remarked, much of the literature on the spleen seems to have been written by Dumas, Munchausen and Hans Christian Anderson. He thinks that the strainer action is an important function of the spleen—hence its enlargement in so many various diseases. In addition it has the action of a lymph gland, the largest in the body, and in addition it has the power of shunting arterial blood directly to the liver, without becoming admixed with the products of digestion. It has, therefore, some function in relation to the portal system. The advantages of splenectomy are probably due to the removal of this great mass of lymphoid tissue. These facts are not clearly brought out in this book. Since, as the author states, "medicine is physiology", works on the same should be of as great value to the practitioner as to the student and this work is a clearly summarized treatise of this vast subject brought in most instances up-to-date and it can be highly commended. WINSLOW.

Anesthetics and their Uses and Administration. By Dudley Wilmot Buxton, M. D., B. S., Member of the Royal College of Physicians etc. Sixth edition, 548 pp., $6.00. P. Blakiston's Son & Co., Philadelphia, 1920.

The specialty of anesthetics has received particular prominence of late and works dealing with this subject are in demand. Beginning with a chapter on the history of anesthesia, the author deals in turn with each of the anesthetics in common use, giving the latest detailed information as to their administration. The properties of each drug are discussed, as well as the effects of each on the different parts of the human system. A valuable chapter is that on complications and accidents, with information as to how each should be prevented and treated. A chapter on local and regional analgesia will be found of much value. This work will prove invaluable to every anesthetist. SMITH.

Practical Massage and Corrective Exercises with Applied Anatomy. By Hartvig Nissen, President of Posse Normal School of Gymnastics, etc. Fourth revised edition. With 68 original illustrations, including several full page half-tone plates. 225 pp. Price $2.00. F. A. Davis Company, Philadelphia & London, 1920.

This book treats subjects with which the average practitioner has very little familiarity. It is well known that massage and corrective exercises when properly applied will benefit many conditions, depending on defects of muscles, ligaments and nerves. This volume offers detailed information for the relief of many of these common complications which might well be treated by the practitioner of medicine but which seems to be considered the special field for the exponents of cults of recent years. It is well worth careful perusal. SMITH.

A Short History of Nursing from the Earliest Times to the Present Day. By Lavinia L. Dock, R. N. Sec., International Council of Nurses. In Collaboration with Isabel M. Stewart, A. M., R. N., Assistant Prof. Department of Nursing, Columbia University. Cloth, 392 Pp. $3.50. G. P. Putnam Sons, New York, 1920.

This is a well written, concise account of nursing beginning with the semipriestly orders of the old religions, the ecclesiastical nursing sisterhoods, the military orders, and finally eventuating in the trained and highly educated nurse, whose beginning dates from the influence of the justly celebrated Florence Nightingale, who revolutionized medical treatment in the Crimea. WINSLOW.

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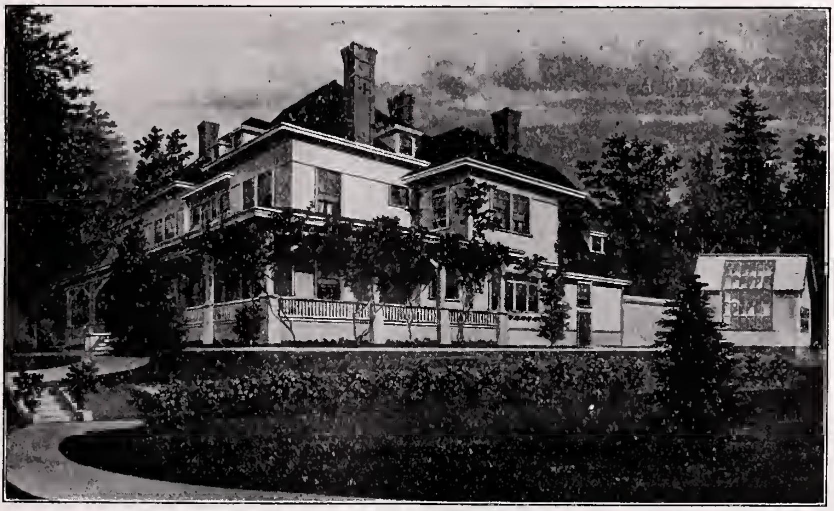

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The Medical Clinics of North America. Boston. Number, Nov. 1920. W. B. Saunders Co., Philadelphia and London.

There is a most admirable contribution in this number on mitral stenosis by White and Reed, in which many excellent diagnostic points are brought out. Thus, while the patient should be examined standing and lying down, the murmur is best heard with the patient prone on the left side. Also a diastolic murmur at the apex rather than presystolic is the most important point. The ventricle may fill from the auricle before auricular contraction actually occurs and, in that case, there may be a diastolic murmur but no presystolic murmur during auricular systole. The thrill may be felt in thin chests in normal hearts excited by exercise or emotion, and also a presystolic murmur may occur because in all hearts there is thought to be a presystolic phase of the systolic sound slightly different from the rest of the systolic sound, a crescendo tone simulating a faint and brief presystolic murmur. Therefore, it is safer to regard as a presystolic murmur only that which is clearly diastolic or associated with an early or middiastolic murmur.

There is an excellent article on renal functional tests by Ohler, in which he shows that in some cases of nephritis the phthalein test is of no service, and in other cases of nephritis with edema the blood urea nitrogen test may be normal, as has been observed by the reviewer; but on the whole the tests are of positive and practical value. There is not space to notice many equally good contributions but one may remärk again that there are no medical publications of so much absolute value as these living and up-to-date actual demonstrations of medicine as practised today by the most skilled in its science and art. WINSLOW.

Practical Dietetics with Reference to Diet in Health and Disease. By Alida Frances Pattee. Late Instructor in Dietetics in Bellevue Training School for Nurses. Thirteenth edition, revised. 502 pp. $2.25, A. F. Pattee, Mt. Vernon, N. Y., 1920.

The fact that this work has reached its thirteenth edition indicates that it fulfills a need in medical practice. It contains receipes and instructions for preparing food in many forms of disease. It should be of special value to the nurse but, likewise will serve the attending physician in suggesting diets for his patients. It is accompanied by a monograph on State Board Requirements in Dietetics and State Board examination questions.

The Story of the American Red Cross in Italy. By Charles M. Bakewell. 252 pp. The Macmillan Co. New York, 1920.

This interesting volume describes the important part played by the American Red Cross on the Italian battle fields. Many people are curious to learn what part this organization actually took in winning battles. In this volume one can obtain complete satisfaction to this inquiry. It is here demonstrated that the Americans had a very imporant part in the final victory obtained by Italy against the powerful and at one time overwhelming enemy. One cannot read this book without a feeling of pride in this organization which so ably represented our nation in the world war.

A Manual of Pathology. By Guthrie McConnell, M. D., Associate in Pathology Western Reserve University, Medical School, Cleveland, Ohio, Fourth Edition, Thoroughly Revised. 12 mo volume of 611 pages, with 18 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $4.50 net.

This handy volume is intended to enable the student or practitioner quickly to review the more important facts of pathology. The popularity of previous editions is sufficient proof that this fourth revised edition will meet this need among physicians. In brief space it presents the salient pathologic facts concerning the diseases of ordinary practice.

Manual of Obestetrics. By Edward P. Davis, A. M. M. D., F. A. C. S. Professor of Obstetrics, Jefferson Medical College, Philadelphia. Second edition, revised, 478 pp. W. B. Saunders Co., Philadelphia and London, 1919.

This second edition has been revised and enlarged by the addition of a number of chapters dealing with conditions attending the puerperium and labor. While it is not an extensive work on obstetrics, salient points are presented which make it a handy reference volume for the busy practitioner.

Pope's Manual of Nursing Procedures. By Amy E. Pope. Formerly Instructor in the School of Nursing, Presbyterian Hospital, New York, etc. Cloth, 595 Pp. $2.40. G. P. Putnam's Sons, New York, 1919.

This manual contains all the necessary procedures which a well trained nurse should be able to carry out in hospital or home. It is all absolutely practical and is wholly admirable in that it does not teach all sorts of extraneous matters unnecessary to good nursing, the common failing in so many books of its kind.

Compend of Surgery for Students and Physicians. By Benjamin Lipshutz, M. D., Instructor in Neuro-Anatomy, Clinical Assistant in Surgery, Jefferson. Medical College. With 185 illustrations. 311 pp., price $1.50. P. Blakiston's Son & Co., Philadelphia, 1919.

Every medical student, as well as every practitioner who has once been one, is familiar with the usefulness of quiz compends. This on surgery contains the necessary information in the most condensed space imaginable. It is a needed volume in preparation for examinations.

Maternitas. A Book Concerning the Care of the Prospective Mother and her Child. By Charles E. Paddock, M. D. Prof. of Obstetrics, Chicago Post-Graduate Medical School, etc. Cloth, 210 pp. $1.75, Cloyd J. Head and Co., Chicago, 1920.

This appears to be a sensible guide to the mother in self-care in pregnancy and in the care of the baby, infant feeding and in more common diseases of childhood.

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ADDRESS

BEARING OF THE CANCER PROBLEM ON THE PROLONGATION OF HUMAN LIFE.*

JOSEPH A. PETTIT, M. D.
PORTLAND, ORE.

Up to the year 1890 the average human being reached the age of thirty; that is, striking the mean between old and infant mortality, the average of human life was about thirty years. The work of Lord Lister and Pasteur so definitely demonstrated bacterial life and its virulent and destructive effects on the human body, that medical men were subsequently able to devise means to curb, if not entirely prevent, its destructiveness. First antisepsis and then asepsis made surgery possible, and gradually innumerable human beings have been saved by timely surgical procedures. Medical men have produced vaccines and antitoxines for specific infections, whereby even a greater number of maladies can be ameliorated or eradicated. Pure water, pure milk, and pure foods have been made possible thru this knowledge. It will not be long before we shall note the salutary influence of enforced temperance. Not only will the direct result of the chronic use of alcohol upon the heart and the circulatory and nervous systems become historical, but temperance will have, as well, an indirect influence upon the stability of the bodies of the next generation. The primitive impulses of human beings are unrestrained under intoxication, and disastrous exposures result—exposures to inclemencies and to infections, as well as increased liability to accident.

As a result of these few years of medical progress, the average human life has been raised to nearly forty-five years—an increase of 50 per cent in less than thirty years. It is reasonable to assume that these same measures, even if they remain unaugmented, will gradually raise this average an additional per cent. Typhoid fever occurs only in isolated situations. The death toll of children from diphtheria has been eliminated thru antitoxin, and that from cholera infantum thru germless food and environment. A death from appendicitis now demands an explanation, while a death from the old time "inflammation of the bowels" is not recognized. Modernized therapy has also successfully reached out to tetanus, meningitis and cholera.

A careful review of vital statistics during the last quarter of a century shows a propitious decline in the death rate of all diseases excepting cancer. A casual glance at statistics, the figures of which I will omit in this brief address, reveals a marked increase in the deaths from this disease. This increase may probably be accounted for in two ways. First, cancer is a condition which develops in the majority of persons after the age of thirty-five or forty years; therefore, by reason of the increase of the average of human life to forty-five years, more people attain the age in which this condition develops. Second, more definite diagnoses are being made at present, and it is probable that no one now dies of cancer of some of the internal organs—where its occurence is frequent—without a diagnosis being definitely established by either surgical or medical means.

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*Presidents Address, read before the Forty-Sixth Annual Meeting of Oregon State Medical Association, Portland, Ore., June 3-5, 1920.

In other words, if the biblical limit for earthly existence were lowered from three score and ten to one score and ten, cancer would be practically unknown, excepting among the few who defied the edict. Or if, on the other hand, the world had remained in the state of medical ignorance which existed at the time of Columbus, or, for that matter, which exists at present in certain parts of the world; or should the impossible contingency arise wherby we should all embrace the alleged wisdom (or ignorance) of so-called christian science, etc., then cancer would be either unknown, unrecognized, or unacknowledged, if not disavowed entirely.

Present statistics show that one woman out of every eleven and one man out of every thirteen die of cancer. It is also estimated that 5 per cent of all deaths after the age of thirty are from cancer; while between the ages of forty and sixty the percentage is still higher. It is probable at the present time that 85 or 90 per cent of those who acquire cancer do not ultimately recover. Analysis of these figures, together with the following, is rather startling. An analysis of over 10,000 post-mortem examinations of persons who have died of cancer discloses the surprising fact that in over 19 per cent of the cases the cancer was still primary and at its original site, and that no metastasis had occurred. In this analysis breast cancer showed the highest proportion of metastasis, namely, only 3 per cent showed no metastasis. The cervix showed almost the same percentage. Cancer of the fundus of the uterus, as well as of the fundus of other viscera, namely, the gall-bladder and the urinary bladder, showed a relatively high percentage of freedom from metastasis. The highest percentage existed in cases of cancer of the sigmoid.

In view of the fact that over 19 per cent of those dying from cancer in this series of over 10,000 cases revealed that the disease was still limited to its local situation, we realize that early operation can yield a greater percentage of cancer cures than is being obtained at present. While it is true that some of this 19 per cent may include cancer of inoperable regions, nevertheless a greater number of other cases should have the primary disease removed before metastasis occurs. At the present time the greatest hope for the prolongation of human life, in so far as the destructive influence of cancer is concerned, hinges upon two points: first, early recognition; and, second, early as well as thoro excision. To secure early recognition of cancer the education of the public must be made broader, and the responsibility for this lies somewhat with the medical profession. The success of early excision depends not only upon early recognition, but also upon trained surgical treatment. Errors are undoubtedly made at times, first, thru exercising too great conservatism in the excision; and, second, thru exposing the tissues and vessels to expressed cancer cells which are loosened either by the knife or by manipulation.

Radiotherapy has a limited field of usefulness, altho its use is most potent. Radium has a destructive influence upon the nucleus of the cell, all of its radioactivity being concentrated on the nucleus. With the nucleus destroyed, cell division ceases and a growth ceases to exist as a growth. The x-ray radioactivity is not so concentrated, since it diffuses its effect upon the protoplasm as well as upon the nucleus. Therefore, an equal exposure of the two would lead us to believe that radium is the more efficacious. Radioactivity apparently produces a degree of fibrous infiltration which is not only inhibitory to the growth of the tumor, but also influential in checking metastasis. Unfortunately, the structures of the skin act as a screen and nullify the effectiveness of the average radioactivity.

In conclusion, the greatest problem presenting itself for our consideration in this age is the prolem of malignant neoplasms. It is reasonable to assume that, if we can master over this scourge the control that has been exercised over other scourges, the average of human life may be raised to sixty years.

ORIGINAL CONTRIBUTIONS

.PAGET'S DISEASE OF THE BREAST.*.

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PORTLAND, ORE.
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Paget's disease of the breast, altho not common, is worthy of careful study because, first, it is one of the most fatal forms of cancer and, second, it gives to us, perhaps, an insight into the etiology of carcinoma.

In reviewing the literature one is struck with the fact that there is a great misunderstanding on the part of surgeons and pathologists regarding Paget's disease. Under this title are described simple eczema, eczema secondary to carcinoma of the breast, other forms of carcinoma of the nipple and even melanocarcinoma secondary to eczema. True Paget's disease is a clinical and pathologic entity, beginning with an eczematous-like lesion, involving the nipple and areola and followed by a carcinoma springing from the epithelium of the lower end of the milk ducts. Probably less than three hundred of the cases reported conform to this definition.

The lesion begins with a round cell infiltration of the corium, accompanied by desquamation of the surface epithelium. The pegs of the Malpighian layer become elongated and broadened, due to a vacuolization of the epithelial cells covering the pegs. These cells are about twice normal in size and hydropic in appearance. The nucleus may be either swollen or shrunken and often is eccentrically situated. The epithelial cells lose their power of hornification. This, coupled with their loose arrangement due to the loss of their spines, increases the rate of desquamation. The surface early becomes moist. Minute ulcers appear, after which the discharge may become purulent. The blood vessels are distended, producing some edema. Plasma cells are to be found. As the process continues the epithelium becomes thinner and thinner, until there may be none present in places. With the thinning of the epithelium the pegs of the Malpighian layer becomes shorter and shorter, until there may be no pegs at all.

The process is not limited to the surface but, as would be expected in the course of time, extends into the milk ducts at their external orifice, producing similiar change in the epithelium. Hyperplasia takes place, filling the ducts with epithelial cells. Sometimes there is a papillomatous arrangement. The duct wall next gives way, permitting the cells to escape. They now begin to grow in an unlimited manner, destroying the cells with which they come in contact, infiltrating into the surrounding tissues and extending into the blood vessels and growing along their course. Metastasis takes place before it is possible to recognize clinically that the process is malignant. This probably accounts for the high death rate of the disease. In fact, on account of the slow growth, it is very doubtful if Paget's disease is really as malignant as are most other forms of carcinoma.

The time the process actually becomes malignant is not known. That there is an inherent malignant tendency from the very start is possible, but it could hardly be said that actual malignancy exists before proliferation of the epithelium in the terminal milk ducts has begun. The first positive evidence of malignancy is the extension thru the duct and infiltration into the surrounding tissue. Some authors, however, deny that the rupture of the duct is due to the process having become malignant, claiming instead that the rupture of the duct is due either to overdistention or pressure atrophy from the extensive epithelial hyperplasia. Careful observation of the two cases that I have been privileged to study show no accumulation of cells with a distinct border, as should exist in a benign tumor but instead infiltration has taken place immediately after the penetration of the duct. If the observation in these two cases is correct, then the process must be malignant previous to rupture thru the duct wall and the rupture of the duct wall an early malignant manifestation.

Clinically at the onset the process resembles a chronic eczema. The surfaces become rough, scaly and slightly reddened. This is followed by the secretion of a slight moisture which is serous in type at first but later, as it increases in amount, becomes more or less purulent. The lesion takes on a moist, somewhat angry looking appearance, involving the nipple and areola and often extending beyond on to the skin. The surface is rough and slightly nodular. The nipple decreases in size until it disappears. While malignancy is not in evidence clinically for some time after it actually begins, when it once does become clinically evident, it does not differ in appearance or behavior from carcinoma beginning deeper in the gland, except for the early ulcerated surface and increased tendency to metastasis and subsequent recurrence following operation.

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*Read before the Thirtieth Annual Meeting of Washington State Medical Association, Spokane, Wash., Sept. 11-13, 1919.

Pathologically the cancer developing in Paget's disease is of the cylindrical celled type, usually solid in character but sometimes glandular. Epithelioma never develops in Paget's disease, showing that, while the surface epithelium is first affected, the duct epithelium always becomes involved.

Etiology. The disease occurs usually bebetween the age of forty and sixty and in breasts that have been nursed. Alcock reported one case in a woman of twenty-eight and there is one reported case in which the patient was seventy years of age. It does occur in virgins and there are a few undoubted cases reported in the male breast. The infection and traumatism incident to nursing probably are of etiologic importance.

Pathogenesis. Four principal theories have been advanced to explain the development of this condition.

1. Thin, in 1881, advanced the theory that it was primarily a cancer, originating in the deeper structures of the breast and that the eczema was due to the effect of an irritating secretion. Depage and Ribbert strongly supported this theory. In this country Rodman and Murphy were among its supporters, altho Murphy evidently came to the conclusion that there was also a cancer secondary to eczema before his death. A large proportion of the cases diagnosed as Paget's disease both clinically and after pathologic examination are of this type. But that there is another condition in which the eczematous-like lesion is the primary one can not be doubted, if cases such as the one I here report be carefully studied. Altho both processes have an eczema and both have a cancer, the order of development is exactly opposite in the two. In the former the carcinoma is the primary lesion and the eczema the secondary one, while in the latter the eczema is primary and the carcinoma is secondary. In the former the cancer is usually of the glandular type, while in the latter it is usually of the scirrhous type. In the former the nipple usually does not disappear unless the malignant process extends down and involves it. In the latter the nipple disappears probably in the majority of cases without any malignant process in the nipple itself.

2. Darier, in studying the vacuolated cells, conceived the idea that these might be parasites that were producting the disease. Altho a few other writers supported the idea it was soon abandoned.

3. Infection theory. The disease furnishes an atrium thru which the cancer organisms, not yet discovered, enter. This theory, while interesting, can not receive support until the organism has been discovered. It is, however, one of the many circumstances that point toward the possibility that cancer is after all an infectious disease.

4. Chronic irritation theory. The disease when it enters the milk duct, or duct of another gland for it does occcur elsewhere, acts as a chronic irritant, resulting in a hyperplasia that finally becomes malignant. By anology this theory is supported by the fact that carcinoma follows leucoplakia of the tongue and ulcer of the stomach. Epithelioma follows chronic eczema. Some authors have wrongly applied the name Paget's disease to such epitheliomata. Cancer of the scrotum develops from the chronic irritation in chimney sweeps and to this may be added the list of industrial cancers.

One of the early supporters of this theory was Karg who believed that the vacuolated cells were the primary cancer cells. Jacobeus agreed with Karg that these cells were cancer cells but he thought they were cells that had migrated from a deeper carcinoma to the surface. The controversy was rather strong for a time, when Hannenmuller and Landois observed that these cells were never found in the connective tissue and hence could not be cancer cells that had migrated, for otherwise they would be found in the connective tissue during the process of migration. Lindt believed them to be degeneration cells and Von Winiwarter later was able to show that they were altered epidermal cells and demonstrated all of the stages in their formation. Bowlby first observed the hyperplasia occurring in the nearby milk ducts. This was later demonstrated by many others and today is quite generally accepted as the beginning of the malignant process.

The great difference of opinion regarding the origin of the disease seems to be due mainly to a failure to recognize that the different authors were studying different lesions. A careful study of such a case as is here presented does not permit of some conclusions that have been reached by very eminent men regarding Paget's disease, and a careful study of their writings shows that they were not studying conditions such as are presented in this case which I report. What is needed today is a clear understanding of what Paget's disease really is.

Those cases of eczema of the nipple running for fifteen or twenty years without the development of cancer are eczema and not Paget's disease. Whether the eczema is the same as the eczema of Paget's disease or not we do not know. Those cases in which an eczema has produced a melanocarcinoma thru irritation of a pigmented mole, while similar in origin to Paget's disease, are not to be understood as Paget's disease and the same is to be said of epithelioma following eczema. Neither are the cases of eczema following a primary carcinoma of the breast Paget's disease.

Were this disease properly understood it would have no mortality. Both pathologically and clinically there is a benign and a malignant state. Clinically the process appears to be benign over a period varying from several months to a few years. Pathologic examination shows, however, that the process becomes malignant at a comparatively early period and that by the time it is recognized as being malignant there are metastatic areas beyond the surgeon's reach.

Every case of eczema or eczema-like lesion of the breast must receive vigorous treatment as soon as it appears and if it does not yield, then the nipple and breast should be excised. It is not necessary to do a more radical operation if this procedure is followed. If the case is seen late, even with the most radical operation the prognosis is not good. Every death from Paget's disease of the breast is either due to the patient not having consulted a physician early enough or to a physician not understanding the nature of the affection or seriousness in delay.

CASE REPORT.

No. 2063. Female, age 58, American, married, housewife. Present trouble began two years ago with scaliness of the right nipple. At first the nipple was dry, the scale light in color. The nipple was but slightly reddened at first. Later the surface became moist and the lesion spread from the nipple onto the aerola. The nipple gradually disappeared. The patient thinks it has been about six months since there was any evidence of the nipple present.

Last August she had a severe attack of dull pain in the right upper quadrant of the abdomen. She vomited greenish material but never observed any blood in the vomitus. Passed no blood from the bowel so far as she observed. Since she has had several attacks of pain in the same region. At times they have been somewhat cramp-like. Pain has no relation to eating. She gets out of breath easily. Heart beats rather strongly at times.

Physical Examination. Patient looks tired and is undernourished. Apparent age greater than real age. Lips slightly blue. Pulse 80 and regular but weak.

Head and Neck: Arcus senilis. All teeth missing.

Chest: X-ray shows the cardiac shadow of the heart to be very broad. A pronounced systolic murmur is heard at the apex and transmitted to the axilla.

Breasts: Both breasts are atrophic and equal in size. An eczematous-like lesion occupies the site of the right nipple and areola. There is a slight depression in the center. No masses are to be felt either in the breast or axilla.

Abdomen: Right rectus muscle is somewhat rigid with the rigidity most marked above. By hooking the finger deeply under the ribs so as to compress the gall-bladder against the liver, respiration can be entirely stopped.

X-ray examination showed the stomach to be practically normal in its appearance and action.

Diagnosis: Paget's disease of the right nipple and breast, mitral regurgitation with hypertrophy and dilatation of the heart, cholecystitis.

Owing to the condition of the heart an anesthetic could not be given, so that a radical operation either for the breast lesion or the cholecystitis was not considered. The breast was removed under a local anesthetic. The patient recovered from the operation but a few weeks later developed a cerebral hemorrhage and died.

Pathologic Report. Gross appearance of specimen: Specimen is that of an atrophic breast. The nipple is absent and in its place is a brownish area 2 cm. in diameter. The center is ulcerated. There are a few scales present. On section most of the breast is found to have been replaced with fat. In the center there is a grayish mass, somewhat pyramidal in shape, about 2 cm. length with the base at the surface. The base measures 8 mm. in diameter. Radiating from this are a few connective tissue bands.

Microscopic examination: The epithelium of the skin shows pronounced thickening in the discolored area. The Malpighian pegs are both thickened and elongated. The epithelial cells are increased in size. In the immediate center there is an erosion extending nearly thru the Malpighian layer. The surface is covered with a thin crust in places. The thickness of the skin as well as the the size of the malpighian pegs gradually diminishes from the center outwards. There is a pronounced round cell infiltration in the connective tissue under the epithelium. Immediately under the area of thickened epithelium, is a distended duct, containing masses of epithelial cells. Similar celluar hyperplasia is seen in ducts down for nearly 2 cm. below the surface. In places the new growth is apparently a hyperplasia of the cells at the place where it is seen. In other places it is apparently a new growth extending into a portion of the duct where hyperplasia has previously taken place. In some of the ducts, where there has been hyperplasia, breaks in the basement membrane are seen with the epithelial new growth infiltrating into the surrounding tissue. Paget cells are present in the newly formed epithelium within the ducts. Mitotic figures are present. Round cell infiltration is present about some of the ducts, in which epithelial proliferation has taken place. There has been some connective tissue proliferation.

Diagnosis: Paget's disease of the nipple.

709 Stevens Bldg.

INDUCTION OF LABOR AT TERM.*

FRANK R. FURSEY, M. D.

SPOKANE, WASH.

In discussing this subject the cases have been considered wherein the pelvic measurements and the presentations of the babies are normal.

Pregnancy ought to terminate at nine calendar months, dating from the time of conception. For practical purposes and, owing to the frequent lack of knowledge of the time at which conception occurs, the time given for pregnancy to continue is 280 days from the beginning of the last menstruation epoch. But in many cases we know that pregnancy goes far beyond that time. Cases, in which there was only one act of sexual intercourse and because of that fact a definite date could be fixed at which pregnancy began, have been known to go for ten calendar months. This is not fair to the baby nor to the mother.

Those of you who know Dr. Adam Wright, of Toronto, will remember the storm of protest which went up when he first began advocating the termination of labor at a definite, stated time. But he weathered the storm and others have followed in his wake. Dr. Charles B. Reed, of Chicago, is another who advocates the induction of labor when labor is due and it is from writings of these two men that some of my ideas and data were taken.

Reasons: The most important reason of all for inducing labor is the fact that the baby fattens rapidly after the nine months is up and, because of the increased size, makes a more difficult labor for its mother, besides being in danger of having damage done to itself during its difficult and dangerous passage to this world. To have a baby born when it weighs seven and one-fourth pounds instead of when it has attained a weight of ten pounds means a much shorter labor for its mother and, because of the shorter labor, there is less shock and less danger of infection.

Another reason is one of convenience, and now I hear you start to object. Is it not better for the interests of a mother and her baby to have the labor occur at a time when the mother is in the best physical condition and the medical attendant is expecting the case and has planned to give it his whole attention on that morning or evening? In these times of scarcity of nurses and crowded condition of hospitals is it not best for nurse and for hospital for you to be able to say to them, "Mrs. So and So will be confined on a certain date and will need your services." When the medical attendant knows on what date a case will be delivered, he can plan his work and will be less likely to be overtired and can then give the case his best attention.

As to objections you may say, "It is contrary to nature." Yes, so are cases of eclampsia and contracted pelves. Experience has taught that, in cases of generally contracted pelves of moderate degree, it is in the interests of mother and baby that a mother should give birth to her child at seven and one-half months or according to the degree of contraction. The attendant acting on that experience induces labor at the time at which his judgment tells him is safest for the baby and mother. Why then should he allow the pregnancy to go longer than nine months in any case?

You may very properly ask, "What of the added danger of infection?" Dr. Reed says that, altho there were streptococci, staphlococci and gonococci found in the cases examined microscopoically before induction of labor, yet in several hundreds of cases there was not a single case in which the temperature rose to over 100° F., unless from a cause which they could determine was not one of uterine infection. One reason is that a mother, going thru confinement and having a minimum of shock during a relatively short time, will resist infection much more readily than one who has been in labor for eighteen hours or more and has been delivered of a ten pound baby with the aid of forceps and ether, and as a result probably has lacerations in the cervix and perineum. This last woman will have abrasions in the lower genital canal, where infective material if present is likely to find a good culture ground, but with the care which a good obstetrician will take with regard to aseptic and antiseptic precautions there is little danger of infections from outside sources. With the current belief that a woman's uninjured tissues will be able to resist infection by bacteria normally present, either by virtue of defensive bacteria or acquired immunity, let it be stated that a parturient woman, who has what is commonly called an easy time with few or no raw surfaces in the lower birth canal, will usually show little or no elevation of temperature. This easy time from a comparative standpoint can be brought about by delivering her baby when it is mature enough to withstand easily its new environment but before it has become large enough to do its mother harm during delivery.

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*Read before Spokane County Medical Society, Spokane, Wash., Sept. 9, 1920.

A very real objection would be connected with the question of maturity or otherwise, because no one wants to bring a child into the world until it has lived long enough in utero to be able to exist in extrauterine life without an extra amount of care. This objection is overcome by measuring the length of the baby and the height of the fundus before labor is induced. With a pelvimeter, one end of which is in the vagina resting against the baby's head measuring from the head to the top of the breech, subtracting one for the thickness of the abdominal wall and multiplying by two for the extension of the child brings the length of a nine months baby from nineteen and one-half to twenty and one-half inches. This method of measuring was suggested by Ahlfeld and is very accurate.

Then McDonald measures from the top of the symphysis to the top of the fundus and finds about thirteen inches to be the height of the uterus at term. These measurements with slight variations for extra thick abdominal walls and also for very large or very small parents with a careful history will give you very accurate data as to when your patient ought to be delivered.

There are several methods which may be used to induce labor. I believe the easiest and safest methods, if they act well regularly, to be the best. Quinine, grs. xii, and two ounces of castor oil given at the same time will start labor in one case in every three in about six hours, according to the experience of the writer. If at the end of nine hours no signs of labor manifest themselves, a Vorhees' bag No. 4 is introduced into the cervix and filled with one per cent lysol solution, after which one and a half pound weight is attached to it. The patient must remain on her back until the bag comes out. Labor usually begins in about one hour. In a few cases, wherein the cervix is soft and experience tells you that it will be easily dilated, easy manual dilatation with three minims of pituitrin repeated each half hour until labor pains are well established will produce good results and in a very much shorter time than the other methods. One must be very careful, however, to be sure that the position is exactly correct and that there is no interference in the birth canal. I have tried bougies and have found them uncertain in the results produced. Puncturing the membranes is certain in the results in that it always produces labor but it makes a slower delivery and I believe ought to be condemned as a means of inducing labor.

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HYDATID MOLE.*

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Hydatid mole is quite generally conceded to be a medical curiosity—and it **usually develops as a** clinical surprise. The advance diagnosis is difficult, to be sure, but in some cases it may at least be suspected. It took a good many papers in the literature to reduce the infrequency of ectopic gestation and, perhaps, even if the average may be one mole in a lifetime of practice, the mentioning of that one from many sources would bring down Madame Boivin's figures of one in 20,000 pregnancies to the place where the statistics really belong. Hirst has seen 13, De Lee 16, Edgar 4, in 15,000 labors; Tait 5 consecutive moles in one patient and Mayer 11 in one woman. Findlay, in his review of 210 cases, found that 16 per cent became malignant, which is the feature making for importance to the gynecologist.

The pathogenetic theories of the origin of this condition have been numerous and go back even to Hippocrates, who ascribed it to a mucoid degeneration of the villi. Noccioli has reviewed the literaature and the examination of twenty cases and has concluded that the mole may depend on (a) a morbid change of the villi into vesicles, or (b) a primary formation of epithelial buds with increased proliferation, elongation of the bases and distension of the fundi. Since the work of Marchand and Fraenkel, it seems to be accepted that the mole is due to a proliferation and degeneration with edema of the stroma of the villi and an increase of the syncitium.

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*Read before the Twenty-sixth Annual meeting of Utah State Medical Association, Ogden, Utah, Sept. 7-8, 1920.

Macroscopically the mass consists of a group of translucent vesicles, whitish, yellowish, or pale rose color; the vesicles varying in size from a pinhead to a hen's egg; and the entire mole as large as an orange or even a man's head. As many as 6000 vesicles have been counted in a single specimen. It may be delivered as a fibrous cast of the uterus or, usually, as a loose mass of thick decidua with cheesy material and blood clots scattered among the grape-like bodies of the tumor. The center may be vesicles, ovum remains, a piece of cord, or perhaps a partly developed fetus. Such placenta as is left usually contains islands of the vesicles. There have been reported a few cases of twin pregnancies—one fetus more or less normal. An analysis of the fluid contents shows essentially albumin, sodium chloride and mucin; a density of 1009; and an alkaline reaction.

Multiparous women are the most affected and then, too, after the seventh lustrum. Women fifty-two and fifty-three have delivered these moles and there is, at the other extreme, in the French literature a case in a girl of nine. General organic disease, such as tuberculosis, syphilis, heart-disorders, do not seem to be associated, altho nephritis has been frequently noted. Virchow observed a coincident endometritis which he believed to be the real cause, and which has been noticed by many others. Polycystic ovarian degeneration has been found coexistent.

The most prominent symptoms are a rapid enlargement of the uterus, hemorrhage, which is irregular and atypical and rather serosanguineous, general malaise, miscellaneous pains, excessive vomiting or edema, appearing at the third, fourth, or fifth month. Nausea is present in some 50 per cent of the cases, and albuminuria in 30 per cent.

The uterus feels doughy and, when the abortion occurs, it is sluggish and attended with considerable los of blood. Perforation of the uterus may occur as the first warning and, of course, there is the resulting secondary anemia.

I have seen two cases, one when I was interne, the other recently with Dr. Benjamin. In his case the startling feature was a fulminating albuminuria with general anasarca, headache, vision disturbance and the picture generally of kidney insufficiency. His patient has always been in sound health.

The diagnosis rests on the rapid growth of the uterus, hemorrhage, absence of fetal movements and of fetal parts; the evidence of illness; and, positively, the appearance of vesicles. In the differential diagnosis are to be considered polyhydramnion, twins, sarcoma of the cervix, and true hydatids. Hewitt reports a case of the latter originating in the liver, leading to peritonitis, perforation of the uterus and discharge of the cysts.

The prognosis is doubtful. Sepsis is very liable to supervene; perforation of the uterus may occur spontaneously; bleeding may be uncontrollable; and later syncytioma malignum may develop. The maternal mortality according to the latest figures is 19 per cent.

The treatment is promptly to empty the uterus. The best method, in view of the danger from hemorrhage, is probably by gauze packs until two fingers dilatation is obtained and then removal with the fingers. The recommendation of a sharp curet seen in several of the textbooks seems to me to be bad. Certainly all preparations should be made for transfusion, with a suitable donor at hand, and one should be ready to enter the abdomen in the event of an accident to the uterine muscle. The woman should be watched for at least two years and, should malignancy appear, the uterus should of course be removed.

Determination of Cure in Gonorrheal Infection of the Male. Cultures of prostatic and seminal fluids and first urine sendiment, carefully collected, according to Russel D. Herrold, Chicago (Journal A. M. A., Jan. 22, 1921), are the most reliable single means of determining whether or not gonorrhea is cured. For this purpose, phosphate agar with blood and ascites fluid is suitable, and the inoculated plates should be incubated under reduced oxygen tension. The complement fixation test is a valuable aid, but the results should be taken in conjunction with the cultural results. Low degree positive fixation may persist up to a year after positive smears and cultures can be obtained. However, with positive serologic reaction, cultures should be repeated at intervals and the patient kept under observation until the serologic tests give negative results. The gonococcus may be identified by agglutination tests with polyvalent antigonocococcus serum.

DEPENDENT DRAINAIGE IN PURULENT APPENDICITIS.*

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PORTLAND, ORE.

The term "purulent", used in the title, must be taken to mean not only gross pus, but the flocculent grumous peritoneal exudate, commonly foul smelling, that is seen in the early stage of the more acute gangrenous appendices. There is greater need for dependent drainage of a septic fluid of this sort then there is for gross pus. Such fluid may precede the protective distension and adhesion of milder types, and for the first twelve hours dependent drainage is of the highest importance.

Water will not run up hill. Is pus an exception to this fluid rule? When it is confined in a cavity, it will follow the lines of least resistance in making its escape. For this reason a drained incision in the top of a pus cavity will give a certain measure of relief. Nature hastens to protect unaffected viscera by adhesions, and then to contract the cavity, and the patient is saved.

While this is admitted, it cannot be maintained that such drainage is the most efficient. It is the type afforded by the Fowler position. When the trunk is supported at an angle even as high as 45°, a horizontal plane thru the level of the lower end of a mid-rectus, Kammerer, or any type of oblique, appendical incision, is above the entire basin of the pelvis and a part of the flank. Pus must consequently be forced up hill to make its escape. That this position has been a valuable life-saving device cannot be denied. It is so by the protection of *dependent drainage* to the diaphragm and upper part of the abdominal cavity. Incomplete drainage is not its only disadvantage. It is difficult to maintain for any length of time without discomfort. Discomfort is a tax on the vitality of an already overburdened patient, that should be avoided. The mid-rectus, Kammerer, or any of the oblique incisions, give perhaps a better average drainage point in this than any other posture. This plan of drainage, inefficient and faulty, is in almost universal use.

In a comprehensive paper on "Drainage in Appendicitis", by Elbert J. Rulliston, Jr., of New York, in the *Annals of Surgery* for December, 1919, there is a critical analysis of 263 cases, done at the Presbyterian Hospital, that required intraperitoneal drainage. The types of incision used were McBurney's 176, Wier, 43, right rectus 30, Median 9, Rockey's 3, Kammerer 2, additional stab wound in flank for dependent drainage 10. We believe, however, that in the average general practice the vertical right rectus is more used than these statistics would indicate.

Dependent drainage that is efficient, with the patient resting comfortably on the side, can be secured thru the outer end of a transverse incision. In November, 1905, in the *New York Medical Record,* I proposed, for the removal of the appendix, a transverse incision directly across McBurney's point, the outer end being above the anterior iliac spine in the ordinary case. In January, 1906, *Annals of Surgery,* Gwyllam Davis proposed a transverse incision, the outer end being inside of the anterior iliac spine. This will do very well in nonsuppurative cases, but it lacks the advantage of flank drainage permitted by the higher incision. In pus cases requiring drainage, this point is exceedingly important. Both of these incisions utilized the same opening of the rectus sheath that had been previously proposed by Wier as an extension of the McBurney incision. The lines of these incisions are shown in fig. 1.

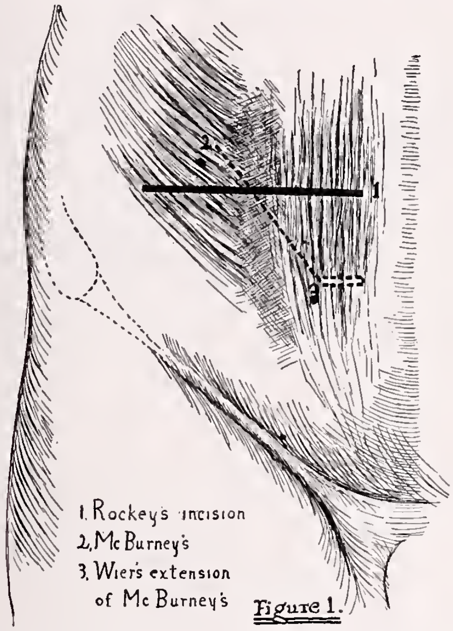

Figure 1.

It will be observed in Rulliston's table that a flank stab wound for dependent drainage was made in ten cases. This is just what my incision provides in all cases. A stab wound in the flank will not, however, give complete dependent drainage if the patient is prone on the back. The posterior pelvic brim forms a barrier. Instead of the inefficient incomplete drainage in an uncomfortable elevated position, the transverse incision provides efficient, dependent drainage in a comfortable, lateral position that most persons assume in normal sleep. In this lateral position, with the upper part of the trunk slightly raised, and comfortably supported on pillows, there are two inclined planes sloping toward the flank, the abdominal downward from the diaphragm, and the pelvic downward from the bottom of the pelvic basin, meeting the upper plane at the outer end in the flank, which is then the lowest point in the abdominal cavity, with the patient in the most comfortable position (fig. 3).

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*Read before King County Medical Society, Seattle, Wash., June 20, 1920.

This position admits of considerable variation in posture without impairing the efficiency of the dependent drainage. These changes do much to relieve the irksomeness of any fixed position. The chest and shoulders may be turned forward or backward, varying the position of the arms, and the lower limbs may be placed as in Sims' position, or both drawn up together or extended, or the right thigh may be drawn up and the left extended. The pelvis may be tilted thru an arc of 40°, and the right flank will still be the lowest point in the cavity. The vital time for complete dependent drainage is immediately after operation. After twelve or twenty-four hours, when distension first and adhesions later have limited the spread of septic fluids, the position of the patient may be advantageously varied. He may be turned further on his back or be elevated on a back rest for a short time without risk.

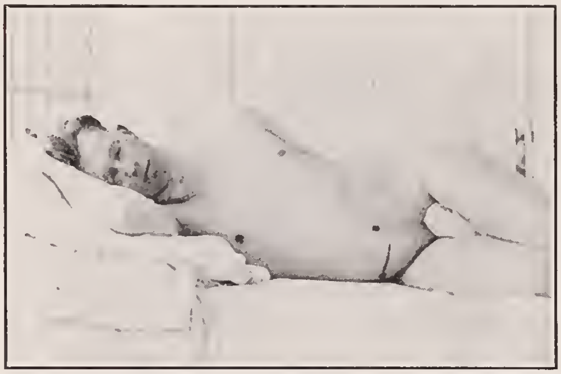

Figure 3. Rockey's position for dependent drainage after operation for suppurative appendicitis. The outer end of the transverse incision is the lowest point in the abdominal cavity.

At this stage caution should be observed not to begin too early with efforts to stimulate peristalsis. It is best to endure for a while the discomfort of tympanitis, and some vomiting or hiccough, rather than risk spreading infection by these efforts. By the third or fourth day the system is fortified by the production of antibodies, and the local spread of infection by protective adhesions. We may then resort to pituitin in moderate doses, enemas or even to calomel or castor oil. When they are effective, and the intestine is emptied of gas and liquid, it is well for a short period to turn the patient to the lateral position (fig. 3), to secure dependent drainage.

There is another most important advantage of this incision in purulent cases. The small intestine is seldom seen in the operative field. Retrocecal and extreme lateral position of the appendix furnish a large proportion of suppurative cases. This may be for the reason that in this position the appendix has failed to follow the cecum in that complete rotation that constitutes normal position. It is consequently more prone to be abnormal in shape and to offer obstruction to escape of normal secretions or to fecal intrusion. This in turn sets up an irritation that predisposes the appendix that is retrocecal, or in lateral position, to inflammatory attack. I have no statistics on this point available, but my personal experience would lead me to believe that this was true.

In almost all others except the extreme pelvic (1 or 2 per cent), the appendix can be readily lifted into the open incision by the finger without exposing the small intestine. Pelvic position in an acute appendicitis can usually be diagnosed before operation. In that position the vertical mid-rectus incision should be made. When, however, for any reason deeper access to the pelvis should be required after the abdomen is opened thru the transverse incision, a downward extension thru the rectus sheath, drawing the muscle inward after the plan of Kammerer, can be readily added. An upward incision carried obliquely into the rectus muscles will give ready access to the gall-bladder. By extending the incision a little past the middle of the rectus, the muscle may be compressed into its sheath without injury, and by extending it well into the flank sufficient room for extensive intra-abdominal operations may be secured.

Thru such an extension I once resected the cecum and descending limb of the transverse colon, anastomosing the ileum with the distal end. A former interne, believing he had to do with an appendical abscess, found on opening the abdomen a large neoplasm of the cecum involving also the descending limb of the transverse colon. In the emergency he called me. His patient recovered without incident, believing he had undergone only an operation for the removal of his appendix until he was ready to leave the hospital, when the real condition was explained.

In the great proportion of cases there is no packing with sponges to wall off the unaffected cavity. The higher outer approach is the most direct to the seat of trouble. The center of the incision is across McBurney's point, which continues as truly to indicate the average location of the base of the appendix as when it was marked by that master surgeon. Whatever the direction of the tip may be, this is the center of surgical action. This being so, the purse string or ligature may be applied with ease to the protruding cecum without bringing it forward from an infected to a clean field. The lower border of the mesentery extends from the midline of the body outward to the cecum and appendix. The small intestine is always at the inner side. To locate the appendix, if it is not directly under the opened incision, insert the finger downward against the anterior wall of the cavity. Pass it outward, and then backward against the posterior wall, and then bring it upward and forward, when it will curve under the free border of the mesentery, and locate or bring with it the cecum and appendix.

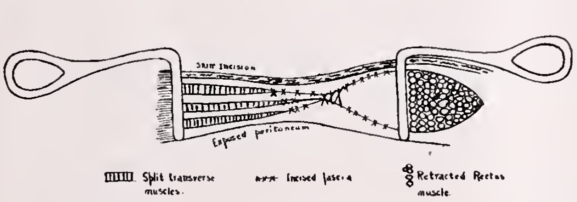

Figure 2

If the operator will examine critically salient points of the surgical anatomy, he will be encouraged to venture on a method that I have never known anyone to abandon after it had been understandingly practiced (fig. 2). The oblique and transverse abdominal muscles have broad aponeuroses, which unite and blend at the outer border of the sheath of the rectus, spreading over and into it both anteriorly and posteriorly. The aponeurosis of the external oblique is the longer of the three. At the line of incision the fibers of the transversalis and internal oblique muscles are directly transverse and parallel, and the external oblique, tho varying a few degrees, is further out, and so soft that the variation is of no consequence in operation. After the transverse incision is carried thru the skin to the deep fascia directly across McBurney's point, the inner end should be over the belly of the rectus, and the outer just above the iliac spine in the flank. The length of the incision will, of course, vary with the requirements of the case. The only part then cut is the rectus sheath, the aponeurtic junction at its outer border and the aponeuroses of the muscles. The incision is then spread wide open by an up and down pull, separating the muscle fibers, and exposing a surprisingly large area of peritoneum.

This up and down pull to open the incision is of major importance in the performance of this operation. The actual cutting is confined entirely to the fascia of the rectus and the aponeuroses of the muscles. This is the key which prepares for the opening which is made by the vertical pull. It is difficult to illustrate this. If I could project a mental picture on this screen of surgical comprehension, the percentage of transverse incisions in pus appendix operations would rise near the top instead of remaining so long near the bottom. There is very little bleeding and nerves are not severed. Retractors are then placed at the inner and outer ends of the incision, drawing the rectus well into its sheath, and unifying the obliquity of the soft muscles at the outer side. This opening may be made in about half the time required for any other incision. The peritoneum is incised on the same line. When drainage is required, it is placed at the outer end of the incision. The important feature of the closing is what we call the "key" sutures. These should be of chromic gut No. 1 or 2. Two are placed about 5 mm. apart through the aponeuroses at the outer border of the rectus. When they are tied, the incision is practically closed. Over them, however, we run a continuous suture in the sheath of the rectus, and outward thru the cut aponeuroses and if no drainage is required, a few stitches in the muscles With drainage the aponeuroses only are sutured. Hernia is very rare after operation by this method The rectus slips back into its sheath, and the pull of the abdominal muscles is in line with the incision, not across it. Only in a few cases, where the virulence of the infection in gangrenous appendicitis has caused some sloughing of the fascia, has hernia occurred. When it does, it is easily repaired under local anaesthesia.

I bespeak for this method of incision and dependent drainage a trial in the worst of suppurative cases. Its superiority in these will soon demonstrate its special fitness for the majority of others, until its general use will become a routine, as it has with me after more than fifteen years.

CLINICAL REVIEW OF STOMACH SYMPTOMS.*

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SEATTLE, WASH.

I wish to report briefly the study of 710 recent consecutive private cases coming for relief of "stomach trouble", with careful history, physical, Wassermann and x-ray examinations. These 710 cases are of interest, inasmuch as they give a fair idea of what we are likely to see in the office, examing general and referred cases. If an apology is necessary for presenting this statistical study, I would offer for consideration the idea that untabulated clinical conclusions are frequently wrong, because we remember well our exceptions and our mistakes, and forget those cases that conform to the rule.

These 710 cases have been divided into five large groups, each case under classification according to our final clinical diagnosis. These groups are shown on the wall chart as:

1. Gastric lesions.
2. Extra gastric intra-abdominal pathology.
3. Extra abdominal pathology.
4. Functional complaints.
5. Unclassified, including apparently postoperative neuroses.

These figures bring out again the well-known, but ever-surprising fact that most cases of "stomach trouble" have no organic stomach lesion. Our diagnoses, as tabulated, contain undoubtedly gross errors, yet the relative figures are probably correct. The report includes all cases completely examined for stomach complaints; hence the patients were nearly all adults.

CASES WITH GASTRIC PATHOLOGY.

Peptic ulcer occurs in sixty cases or 8 per cent of our stomach complaints, and occurs five times more frequently in the duodenum.

If a deformed duodenal cap or gastric deformity is evident on the screen or plate, we prefer to reexamine the patient, with the fluoroscope at least, before making a positive diagnosis. This has occasionally saved us great embarrassment. Physiologic doses of belladonna are of great assistance in relieving extreme spasms. Conversely, a "negative stomach" very rarely is found to show late x-ray pathology. We much prefer failing to find an ulcer than to find one that does not exist. Either mistake is unfortunate for the patient, but the failure to find an ulcer is potentially much less harmful.

710 PATIENTS EXAMINED FOR STOMACH COMPLAINTS

OUR CLINICAL DIAGNOSIS		PREVIOUS OPERATIONS				
	Per Cent	No. Pts.	App.	G.B.	Stm.	Pel.
Organic Gastric						
22 Carcinoma	3.1	3	2	1	..	..
10 Gastric Ulcer	1.4	2	..	..	2	..
50 Dodenal Ulcer	7.	11	6	3	4	..
1 Gastric Lues	.1	...	..	..	..	..
Reflex Gastric						
55 Apendix	7.7	1	..	..	..	1
105 Gall-bladder	14.8	24	17	7	1	1
61 Constipation	8.1	15	12	..	1	2
16 Colitis	2.3	3	2	..	..	1
11 Pelvic	1.6	2	2	..	..	2
Extra Abdominal						
5 Pernicious Anemia	.7	0	..	..	..	..
15 Lues	2.3	2	1	..	1	1
3 Tabes	.4	2	1	..	..	1
20 Heart	2.8	3	2	1	..	..
23 Lungs	3.2	4	2	..	..	1
25 Kidneys	3.5	3	1	..	..	1
12 Migraine	1.7	2	1	..	..	..
15 Others	2.1	1	1	..	..	..
Functional						
117 Neurosis	16.5	31	20	2	1	16
32 Hyperacidity	4.5	6	6	1	..	..
37 Achylia	5.2	8	5	..	1	2
7 Psychic	1.	0	..	..	..	..
Unclassified and Post Operative						
68 Cases	9.7	25	13	7	4	6
710		148	94	22	15	35

Duodenal Ulcer has a quite typical history of the well-known chain of symptoms. The exacerbations of trouble with more or less complete remissions of symptoms are very characteristic. There must be a beginning to the trouble of course, but as we have seen the cases they have gone the rounds and have usually a long standing history. If the patient has not a typical story of long standing, the burden of proof of ulcer is on the physician. On the other hand, if the history is of long standing with typical remissions and exacerbations, without food selection and with definite food relief, we feel reasonably sure of a pyloric ulcer.

Gastric Ulcer, near the pylorus, gives a practically identical story with duodenal ulcer. The more remote the ulcer from the pylorus the more atypical the symptoms. Gastric ulcer high up or on the posterior wall is fortunately relatively rare, for the symptoms and x-ray findings are very atypical. A posterior wall ulcer sometimes gives no pain until chronic perforation and plastic peritonitis and pancreatic involvement cause pain. An ulcer pain, which is rapidly becoming violent during an exacerbation of ulcer symptoms, means probably a chronic perforation and may forecast an acute perforation. Severe ulcer pain referred to the back indicates a chronic perforation with pancreatic involvement, accounting for this always described, and rarely found, text-book symptom of ulcer. Back pain from ulcer will often persist after operation, if the ulcer is not excised.

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*Read before the Thirty-First Annual Meeting of Washington State Medical Association, Tacoma, Wash., Sept. 16-17, 1920.

Acute perforation has occurred twice in this series, once a posterior wall ulcer with negative clinical and x-ray findings, and once in a typical duodenal ulcer with severe symptoms. In both cases the symptoms were violent pain, with sudden onset and blood vomiting. Two other cases of perforated duodenal ulcer have been seen in consultation. Three recovered following operation; the fourth patient died following operation done immediately on seeing him, but one week after the perforation had occurred. Acute perforation is regarded as always a surgical indication as soon as the diagnosis is established.

Hemorrhages have occurred in 6 of our 50 duodenal ulcer cases, and in one case proved fatal—a very unusual termination of an ulcer hemorrhage.

Medical treatment of ulcer is advised in cases that have short histories, that have no obstruction, that are not seriously incapacitated periodically from work, and that do not suffer chronically from severe pain.

Surgical treatment is indicated when there is a chronic history, or evident obstruction, or periodic incapacity for work. Repeated hemorrhages indicate surgical treatment. Proven gastric ulcer is always, we think, surgical. Surgical treatment is advised in another class of cases, i. e., those in whom the ulcer interferes with earning capacity and who are not able to pay the expense of good medical treatment. If hospital and medical expenses over months are to exhaust the patient mentally and financially, he had better take the quicker and cheaper method of surgical relief in good hands. Medical treatment can assure the patient of immediate relief, but cannot insure against recurrence.

Gastric carcinoma has been found in twenty-two patients. While palliative treatment is usually all that can be advised, yet I wish to emphasize the remarkable temporary cure following good surgical interference for pyloric carcinoma. Striking features of the diagnosis of gastric carcinoma are the early lack of symptoms and the remarkable accuracy of x-ray diagnosis. We have, to date, no diagnostic error that has become evident.

EXTRAGASTRIC INTRA-ABDOMINAL PATHOLOGY

Gall-bladder disease is a frequent basis of stomach complaint. It is remarkable how often we see a history of indefinite gall-bladder symptoms or of typical colic years before, apparently cured and then the gradual onset of very definite gastric symptoms. Early in such symptoms there is a hyperacidity; then later the excessive acid production seems to tire the gastric glands and causes low or absent acidity. Absent acids seems to be the rule, if the disease exists long enough. The characteristic feature of a gall-bladder indigestion, as opposed to ulcer indigestion, are the earlier onset of distress after eating and the marked tendency of certain foods to cause flatulence; particularly fried foods, rich foods and raw fruits, especially apples. This "food selection" is in marked contrast to the lack of food selection, typical of ulcer. The predominance of women suffering from gall-bladder disease is noteworthy.

Chronic appendicitis is a frequent cause of reflex indigestion, but perhaps not so frequently a cause as it was considered a few years ago, for in our series of stomach complaints, nearly one hundred patients had lost their appendices before they came to us.

Constipation frequently causes stomach symptoms and simple directions for its correction by dietetics and hygiene usually give great relief.

Colitis is not ordinarily considered as a cause of indigestion, yet several patients who knew they had colitis have come for examination of the stomach because of their gastric indigestion. Three colitis cases have had a marked gastric retention from no apparent cause except their colitis.

Pelvic disease, including malpositions, is an occasional cause for indigestion. In surgical circles pelvic disease must be held to cause much stomach distress, or not all of thirty-five patients would have had pelvic operations and now be having stomach symptoms.

EXTRA ABDOMINAL PATHOLOGY.

Thoracic disease may cause gastric disturbance of marked degree. Ten cases of typical pulmonary tuberculosis and several chronic bronchitis cases come in this series. Myocarditis or aortitis also may cause indigestion and angina pectoris may give epigastric pain. In forty-three cases we found the apparent cause of the patient's complaint above the diaphragm.

Systemic intoxications include a number of general toxemias which cause gastric complaint. Syphilis was found in sixteen of our cases; three were referred with the diagnosis of gastric ulcer, who were typical tabetics; one case had an organic luetic stomach; and two cases of organic duodenal ulcer had syphilis. Nephritis and hypertension were the apparent etiology in twenty-five cases. Pernicious anemia was found in five cases, two of whom had a diagnosis elsewhere of carcinoma. Other conditions, such as epilepsy, Addison's disease, pregnancy, etc., have been found, but the most frequent intoxication, if it be such, is migraine.

Migraine includes a group of cases that are functional, in that no organic cause is discoverable. The typical periodic headache, with or without vomiting, which patients often attribute to the stomach and call a bilious attack. Sixteen cases recently studied show a family history in thirteen cases, not noted in two cases, and in one the patient did not know the family history. In other words, the headache tendency is practically always inherited. After most careful study we find a refractive error, or constipation, or nasal pathology or other apparent reason. We correct the evident thing, with occasionally much relief to the patient, but the headache tendency remains because our apparent cause is not the real etiologic factor. These headaches are brought on by factors which in other people do not cause headaches. The periodic history and the family history are always guiding features. Such headaches usually stop at middle-age, tho often there is an exacerbation of trouble just before they stop. The headaches become markedly worse, if the patient develops hypertension.

FUNCTIONAL COMPLAINTS.

Gastric function is frequently upset from unknown causes and no etiologic factor can be found to account for it. Here we find a large number of cases of *hypersecretion and hyperacidity*, and the reverse picture of low or absent acids. In certain functionally deranged patients there seems to be no limit to what the stomach glands can do. Our highest acidities are not found in ulcer patients, but in functional cases. The highest acidity in this series is, total acids 184, free HC1 86; the analysis done three times with carefully titrated reagents. The fifteen highest analyses in this series show ten with no evident pathology, and the five highest analyses occur in cases which after searching investigation could only be called "functional hyperacidity." *Achylia gastrica* offers an interesting group of cases. The symptoms vary from no indisposition to a marked amount of trouble with great flatulence, general disturbance and enteroptosis. Free acids are constantly absent and marked visceroptosis is frequent. A word of caution in connection with diagnosis. We must rule out gall-bladder disease in such cases and we must remember that a temporary anacidity may be due to reflex disturbance, to debility, to recent hemorrhage. I hesitate to diagnose achylia gastric without repeated test meals or fractional test meal.

Functional digestive distrubances, due to general causes, after all form the largest percentage of all stomach complaints. We rule out organic and reflex pathology, and have left this far larger group. The characteristics are the lack of characteristics, to use an Hibernianism. The story varies from a list of possible or impossible gastric symptoms to a confusion of extraneous symptoms: Vertical, dull headaches, eye troubles, backache, constipation, chronic tire, numbness and parasthesias, palpitation and irregular heart action, etc. The patient may be debilitated, discouraged, thin, asthenic, and the stomach seems to be the weakest part and so gives the symptoms. Marked irregularity of habits, rapid eating, dietetic ideas without foundation, all play a part. We see pseudovegetarians who forget that, lacking meat, they must have milk and eggs, and patients who live only on potatoes, bread and tea. One man, with a remarkable hemorrhagic diathesis and stomach complaint, was found to be doing his own cooking and living exclusively on dried beans and toast. Correction of dietetic errors and eating habits play a large part in gastric therapeutics.

Hysterical Vomiting is an important symptom. One such case occurs in our series, who promptly recovered as a result of reassurance. I have seen a number of such cases previously and cannot refrain from quoting one. A young woman, 22, had been vomiting one-half to two-thirds of each meal immediately after eating and had lost from 136 lbs. to 76 in two years. Her symptoms dated from an appendiceal abscess. During the two years following drainage of the abscess she suffered four times from a surgical enthusiast, losing her appendix, then the gall-bladder, then having a gastroenterostomy made, and finally having it disconnected. Reassurance and forced feeding were followed by a gain of 41 pounds in forty days, no medicine being administered and the patient not in bed. A most striking feature in such girls coming under my observation has been the remarkable freedom from evidences of hysteria or nervousness, as we usually interpret them. The patients have usually been fairly composed and logical, and thus far have been amenable to suggestion. Most careful examination and study are necessary to establish a diagnosis, always remembering that a pregnancy may explain apparently nervous vomiting, Hysterical vomiting is by no means a rare condition.

GENERAL OBSERVATION.

The diagnosis of organic gastric disease is now so accurate as to compare favorably with any other organic diagnosis. Disturbances of gastric function from reflex, general or nervous causes are not so easily diagnosed; and yet they can be correctly interpreted in the large majority of cases.

I wish to enter a protest against incomplete clinical study before abdominal surgery is advised. Of these 710 cases, 148 had already had the abdomen opened before we saw them. The chart shows the relative numbers of operations done before we saw the patients, and the apparent trouble that brought the patient to us. Ninety-four appendices were stated by patients to have been previously removed. A few of these were acute, and many had been removed while pelvic work was being done; but about one-half of the patients who had lost their appendices claimed to have about the same symptoms as before the operation. Six appendices and one gall-bladder had been removed from patients later proven by operation to be suffering from duodenal ulcer. Twenty-five more appendix had been removed from patients whom our best ability could only diagnose as suffering from achylia, hyperacidity or constipation. Seventeen more appendices had been taken from patients with apparent gall-bladder disease. Twenty more appendices had been removed from patients whom suffering from neurosis and debility. One-half of thirty-one previously operated patients considered by us to be suffering from general debility, had had supra pubic pelvic operations before we saw them. As diagnosticians we try to recognize the limitations of clinical diagnosis, and we know that our best efforts at diagnosis fail too often, yet I submit that this record of operations does not show a slate that we should be proud of.

A careful, full history is the best single evidence in gastric diagnosis. In fact, the correct diagnosis cannot usually be made without it. Of almost equal importance are the x-ray examination and the complete physical examination, including laboratory work. If we lack any of these we make many avoidable errors.

LUETIC INVASION OF THE NERVOUS SYSTEM.*

A. A. Robinson, M. D.
OGDEN, UTAH.

There is perhaps no disease quite so universally treated by general practitioner and specialist as syphilis. Every physician who treats this disease should sense the obligation imposed by the nervous system. A sense of false security, too profound, has been indulged in with reference to neurosyphilis. This has been disturbed, often, only after years have elapsed and the patient then returns with the expressionless face of paresis, an unstable gait of tabes or perhaps some sudden unexpected calamity. The nervous system is frequently slow to accept the insult but nurses a prolonged grudge after all symptoms have subsided.

The direct cause of all forms of syphilitic and so-called parasyphilitic diseases of the central nervous system, is invasion of the neuraxis and its appendages by the treponema pallidum. Virulent organisms are carried by the blood stream. These may enter soon after the initial infection, may come later from other infected viscera, or from the lighting up of dormant foci which have long been quiescent.

The selective action of this virus on parts invaded and on individuals differs. In younger persons, soon after primary infection, there is a tendency to a general cerebrospinal involvement. This, it seems, is not the case in later life. In these younger persons the disease is similar in its pathology to active syphilis elsewhere in the body. It is quite probable that this selection is due to the burden imposed during the more active period of life, just as an opposite condition attains, as Dercum has drawn attention to the infrequency of paresis in the negro, the more mentally active persons being particularly susceptible to this structural break.

Dr. Fraser (*Arch. Derm. and Syph.* March, 1920) has demonstrated the triponema pallidum in meninges of infants dying a few minutes after birth.

The various clinical types encountered may be classified as follows: general cerebrospinal syphilis, syphilitic endarteritis and meningitis, tabes, taboparesis, general paresis and localized lesions.

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*Read before the Twenty-Sixth Annual Meeting of Utah State Medical Association, Ogden, Utah, Sept. 7-8, 1920.

Kaliski and Strauss (*Am. Journ. Syph.*, Oct., 1918) regard tabes as a primary degeneration and differentiate it from pseudotabes, due to an exudative inflammation of the meninges in the region of the nerve roots and posterior columns.

In the dementia paralytica type the toxic action of the treponema pallidum on neurons produces extensive destruction, followed by active mesoblastic response. Similar lesions, but circumscribed and of a more mild degree of reaction, are found clinically. It is considered doubtful whether this is a form of cerebrospinal lues or the forerunner of true dementia paralytica.

The cerebrospinal fluid should be examined in every case of constitutional syphilis before a patient is pronounced cured.[1] Altho few give physical signs of central nervous system involvement, a large percentage of these cases show an abnormality in the spinal fluid. Most of these cases give normal reactions eventually. About twelve per cent, however, continue to give abnormal reactions. "Inasmuch as this number corresponds closely with the percentage of individuals who eventually develop nervous syphilis, it seems justifiable to look upon the percentage of abnormal spinal fluid reactions as the correct sign of invasion of the nervous system by the treponema pallidum." (Kaliski and Strauss.)

In the management of neurosyphilis one must not disdain the clinical aspects, but in diagnostic, prognostic and therapeutic decisions the cerebrospinal fluid has proven a most valuable support. This fluid is not primarily infected by the blood, but is contaminated itself during the course of performing its function of carrying waste material from brain and cord. For that reason, as well as statistical evidence, reliance is placed upon it as an index to the conduct of structures beyond.

In the interpretation of laboratory findings the significance of the various abnormalities are here considered.

Warwick and Nixon (*Arch. Int. Med.*, Feb. 16, 1920) think a normal cell count is five or less. A leukocytosis alone is not pathognomonic of syphilis, as a mild grade is met with in other diseases of the central nervous system. The presence of globulin alone indicates organic disease of the brain or cord but does not separate syphilis from non-syphilitic diseases. (Fordyce *Am. Journ. Syph.*, July, 1919)

Kaliski and Strauss interpret Wassermann reactions as follows:

A positive Wassermann of the blood *may be* interpreted as active or latent syphilis in the system.

A positive Wassermann spinal fluid signifies the invasion of the central nervous system.

Negative Wassermann spinal fluid does not necessarily exclude the presence of syphilitic involvement of the central nervous system (especially so in syphilitic endarteritis).

A single negative Wassermann spinal fluid after treatment is not always evidence of a cure.

Certain conditions may influence reactions. For example, intravenous and combined treatment, intraspinal treatment, repeated lumbar puncture and temperature producing sera, e. g. tuberculin. The reactions may also disappear spontaneously during the course of the disease.

J. Capelli (*Brit. Journ. Derm. and Syph.*, March, 1920) studied forty-eight cases, watching for the four reactions of Nonne. He found all active, even in recent cases. Change in pressure is the least important. Increase of albumin and cells points to a meningeal reaction, not always syphilitic. The cytologic changes found just before the secondary rash may mean a true syphilitic meningitis.

The colloidal gold test presented by Lange in 1912 has been a most valuable adjunct. This consists of a series of color changes which occur so characteristically and constantly that they may be said to be specific. The color change depends upon the amount of colloidal gold precipitated from a properly standardized solution. These color changes range from the negative salmon red thru red-blue, lilac or blue, blue-grey or grey and colorless. These may be platted in curves or expressed from zero to five. As ten dilutions of the spinal fluid are used, ten numerals express the findings. A negative colloidal gold would show no change and would therefore be expressed as 0,000,000,000.

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[1] The technic of lumbar puncture. "Joseph C. Regan has made elaborate studies on the anatomy of the lumbar spine in children and adults and concludes that in both it is decidedly preferable to enter the needle exactly in the median line. In the case of chidren the needle should be introduced perpendicularly to the spine, that is, at an angle of ninety degrees, and any upward inclination increases the danger of a dry tap.

In adults the anatomy of the spine differs from that of the child and this fact influences markedly the manner of insertion of the needle. The lumbar spinous processes are not horizontal as at an early age but have a distinct downward inclination, which is considerably increased by a projection of the tubercles on the interior border. Flexion of the spine widens the interspinous intervals but does not appreciably alter the direction of the spines themselves. With the spines well flexed, however, the interval between the adjacent processes is widened sufficiently to allow the introduction of a needle in the majority of instances in a perpendicular direction (ninety degrees) to reach the subarachnoid space without encountering bones. In some cases (a decidedly minor percentage) it is impossible to introduce the needle in a perpendicular without having it impinge on the bony obstruction of the superior border of the spinous processes of the vertebrae below. In such instances the needle's course should then be changed by withdrawing it slightly and directing it obliquely upward at an angle of from sixty to forty-five degrees, and this will always, except in rare cases, be followed by the disappearance of the bony obstruction and the entrance of the needle into the subarachnoid space."

In tabes and cerebrospinal syphilis the reaction occurs in the lower dilutions with the intensity of the change in the third and fourth or fourth and fifth tubes. The reading would be 1,133,200,000 or 1,223,320,000.

In paresis the reaction occurs with the intensity in the stronger cord solutions and would read 555,543,100. The term luetic curve or luetic zone is used to describe the scale reaction.

In extensive studies Warwick and Nixon (*Arch. Int. Med.,* Feb. 16, 1920) as well as numerous others conclude that the colloidal gold test should be made routine. The only known exceptions in the test seems to be supplied by Moor (*Arch. Int. Med.,* Jan., 1920), in which he warns that a paretic gold curve is found in lead poisoning, tuberculous meningitis and multiple sclerosis, but these are accompanied by a negative Wassermann.

According to Weston (*Am. Journ. Insan.,* April, 1920) the colloidal gold precipitation substance in the spinal fluid of paretics is a globulin. It is not the Wassermann reacting substance and can be separated from the latter quantitatively. This explains why one may have a paretic curve in the gold test with either a positive or negative Wassermann.

In the progress made in the diagnosis of neurosyphilis a more favorable prognosis has, indeed, appeared. In numerous cases considered hopeless a decade ago the progress of the apparently inevitable is often arrested, while others, therapeutically abandoned, are reported as cured. Literature is too pregnant with such reports to even attempt a summary here. Records show the cure of blind, deaf and paralyzed, the arrest of tabes and paresis, the clearing of extreme backwardness and imbecility, meningitis and aphasias, and various psychoses not only of the paretic type but also cases of the paranoid type yield to treatment.

Intensive salvarsan and mercury treatment is the accepted one. Some have maintained that the only method by which salvarsan could reach the regions involved was by direct administration into the subdural space. This theory, however, has been disproved. Numerous examinations of spinal fluid taken from ten minutes to twenty-four hours after intravenous injections show varying quantities of arsenic in the spinal fluid. The choroid plexus does not bar this welcome medicament.

Sachs (*Arch. Neurol. and Psych.,* March, 1919) warns against intraspinous treatment. In the first place arsenic reaches the deep structures and meninges as well as the blood vessels by way of the intravenous route and is also found in the cerebrospinal fluid. Thus the patient's serum, already salvarsanized by intravenous injections, carries the drug to the choroid plexus, thru which it is secreted to the spinal fluid. This is then absorbed into pericapillary and perivascular spaces to the subarachnoid cavities and thence to the venous sinuses and heart.

Fordyce (*Am. Journ. Syph..* July, 1919), whose doctrine Sachs profoundly opposes, maintains that cases are often encountered which fail to respond to other methods of treatment and subdural injections are necessary. He cites the fact that intensive intravenous injections of salvarsan are sometimes followed by jaundice, dermatitis and other symptoms of system arsenic poison, making it necessary to desist. He then resorts to intraspinal injections of salvarsanized serum, prepared by the method of Swift and Ellis.[2]

Failure to obtain satisfactory results, he states, is attributed to imperfect technic. He cites as follows: "Invasion of the central nervous system occurs during the florid stage of syphilis and often manifests itself in spite of intensive treatment with salvarsan and mercury, as shown in some of the author's cases. This early meningitis or meningeoencephalitis continues to progress until the new factor, intraspinal therapy, is introduced.

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[2] "The patient is given an intravenous injection of salvarsan, and approximately one-half hour later 50 cc. of blood are withdrawn from an arm vein. This is permitted to clot over night in the refrigerator. The next morning it is centrifugalized and the serum pipetted into a sterile tube. After a second centrifugation to insure removal of all red blood cells, the clear serum is pipetted into another tube. To this is added the desired amount of salvarsan, namely, from 0.1 to 0.25, 0.33 or in certain cases of paresis 0.5 mg. This mixture is then inactivated at from 55° to 57° C. for one-half hour. To arrive at the proper dosage for intraspinal therapy we make a dilution of salvarsan, of which 30 cc. represents 0.1 gm., of the drug; 10 cc. is then further diluted with 0.5 per cent saline solution to 35 cc., of which 1 cc. equals 1 mg.. of salvarsan. In the administration of the medicated serum a lumbar puncture is made and about 10 to 20 cc. of fluid withdrawn. A small gravity tube with a capacity of about 40 cc. is attached to the needle and the fluid allowed to flow in until it holds about 30 cc. To this is slowly added the serum and the mixture permitted to flow into the canal."

It then declines with great rapidity. Will our unprejudiced critics accept such evidence".

Lafora (*Revue Neurol.*, 1919) and others report much success with intraspinous treatment.

Tzanck (*Pract., Mad. Ser., Neurol.*, 1918) advocated spinal drainage, following intravenous injections of salvarsan with the hope that by replenishing the fluid an additional amount of arsenic would be obtained. This has accomplished good only by directing experiments in that direction.

Mehrtens and MacArthur (*Arch. Neurol. and Psych.*, Oct., 1919) studied Tzanck's method but with unsatisfactory results. They also tried to determine if the normal penetration of arsenic into the spinal fluid could be increased by an irritation of the meninges. This was done by injecting the patient's own serum into the subdural space. The following is a summary of their work on eighty cases, treated by them previously by the ordinary intensive methods with meager results:

"Simple intravenous injection of 0.6 gm. arsphenamine resulted in a positive test for arsenic in the spinal fluid in forty-three per cent of the cases.

Complete drainage of the spinal fluid did not increase the number of arsenic penetrations.

Intravenous injection of arsphenamine six hours after meningeal irritation gave ninety-two per cent penetrations and, compared with the controls, gave three times as strong an average concentration of arsenic."

These observers suggest the following application of treatment of neurosyphilis:

"1. Every patient should have the benefit of intensive intravenous medication until we are certain that the case belongs among those with impermeable membranes.

2. The experiments would suggest that for the cases resistent to ordinary therapy, in order to obtain the maximum concentration of arsenic in the spinal fluid, the patient's own blood serum should be injected into the subarachnoid space six hours before the arsphenamine is given intravenously. This serum may be injected as in the Swift-Ellis technic or, if necessary, arsenic may be added according to the Ogilvie and Byrnes technic. The procedure is not more complicated than other of the intradural methods and has the definite advantage of allowing arsenic to pass from the blood streams to the spinal fluid in greatly increased concentration."

Fabry (*Med. Klin.*, Nov. 23, 1919) believes silversalvarsan and sulfoxylate a step forward in the treatment of syphilis. Sioli (*Deut. Med. Woch.*, Feb. 19, 1920) thinks these drugs of value in old cases of progressive paralysis. Others agree that these have a strong effect on the spirochaete, are well tolerated, and less toxic than other salvarsan preparations. Also that small doses show the same effects as large doses of salvarsan and that children tolerate the drugs well. (R. Linzman, abstract *Deut. Med. Woch.*, 1919 13, and Notthaft's Ibid.)

In badly nourished conditions of patients, Nolton (*Deut. Med. Woch.*, March 5, 1920) advises to abstain from giving mercury. With salvarsan and silver-salvarsan the same results may be obtained.

2447 Washington Ave.

INCIDENCE OF SYPHILIS IN THE INSANE.*

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The following information is offered relative to the results of the laboratory examinations of the blood and spinal fluid among the patients in this hospital. Very few of the patients are feeble minded, all of them, with few exceptions, having been regularly committed as insane.

Every patient has a Wassermann test made of the blood, and in over 80 per cent of all admissions spinal punctures have been made, and the spinal fluid sent to the State Board of Health Laboratory, at Seattle, for the four standard routine tests. These examinations are especially valuable, assist greatly in diagnosis, and oft decide whether cases are of a curable or incurable nature.

Before the State Board of Health was prepared to do our Wassermann and spinal fluid work, this was done at the Staniford Laboratories, Tacoma. Between September, 1919, and June, 1920, this laboratory made 229 complete spinal fluid examinations and three blood Wassermanns. The following table shows the laboratory work done by the Washington State Board of Health during the biennium.

Wassermann tests on blood specimens	1724
Wassermann tests on spinal fluids	880
Cell counts on spinal fluids	347

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*Read before Pierce County Medical Society, Tacoma, Wash., Nov. 23, 1920.

Tests for increased globulin	873
Colloidal gold curves	861

Wassermann tests and spinal fluid examinations were allowed to lapse during the war, owing to unsettled conditions, but were reestablished as soon as possible after the armistice. On June 1, 1920, all patients in the hospital were gone over again and a blood Wassermann was taken, and in 56.32 per cent of the cases a spinal fluid examination was made. The following table gives the result of this work.

Hospital Census, June 1, 1,303 patients tested

	Males	Per Cent	Females	Per Cent	Total	Per Cent
Cases tested, Blood serum	735		560		1303	
Wassermann Serum positive	73	10.5	35	6.34	109	8.36
Wassermann Serum negative	653	85.9	526	92.6	1179	90.4
Wassermann Serum doubtful	8	1.0	7	1.23	15	1.*

In 721 of the above 1,303 cases spinal punctures were made. Results of spinal fluid tests were as follows:

	Males	Per Cent	Females	Per Cent	Total	Per Cent
Total spinal fluids tested	413		308		721	
Wassermann Spinal fluid pos. (agree)	39	9.44	17	5.51	56	7.76
Wassermann Spinal fluid pos. (disagree)	4	.97	7	2.27	11	1.52
Wassermann Spinal fluid neg. (agree)	336	81.35	258	84.81	594	82.38
Wassermann Spinal fluid neg. (disagree)	34	8.23	26	8.44	60	8.30

Analysis of the above two tables shows that on the census of the hospital June 1, 1920, embracing 1,303 cases, 8.36 per cent showed a positive blood Wassermann for syphilis (male 10.5, female 6.34 per cent) also in 721 of the 1,303 patients spinal fluid examinations were made, and eleven of these had a positive spinal fluid Wassermann, where the blood Wassermann was negative. In these cases the other three spinal fluid tests were positive also. In sixty cases the spinal fluid showed a negative Wassermann, while the blood Wassermann was positive.

This would indicate that we have in the hospital a certain number of patients with blood Wassermanns positive, where the syphilitic infection may be coincident with the psychosis, and this is, of course, in accordance with common clinical findings. We attach a great deal of significance to the Lang's gold chloride test, especially the paretic curves, and when corroborated with increased cell count, globulin and spinal fluid Wassermann, has always been accompanied by clinical symptoms of paresis, with the possible exception of one case, which is now under observation.

The following table is of especial significance, as it shows what percentage of our regular admissions are affected. In the past biennium we had 791 admissions. In the early part of the biennium our laboratory service was disorganized, and many (323) cases were not tested on that account; however, later all cases were again tested on admission, and 468 cases were examined almost consecutively.

Analysis of the following table indicates that about one of every five men (18.1 per cent) admitted to this hospital have a positive blood Wassermann, indicating syphilis, and that about one of every ten women (11.4 per cent) have a positive blood Wassermann on admission. In about 2.5 per cent of cases, the spinal fluid examination shows a positive Wassermann with other confirmatory reactions, where the blood Wassermann was negative. In other words, if we depended on a blood test alone in the 1.5 to 2.5 per cent of cases, we would be mislead in the diagnosis, and this emphasises the importance of spinal puncture in virtually all admissions.

Following is an analysis of 468 consecutive admissions examined during the last part of the biennium from Oct. 1, 1918 to Sept. 30, 1920:

	Males	Per Cent	Females	Per Cent	Total	Per Cent
Cases Tested Blood serum	320		148		468	
Wassermann serum pos.	58	18.1	17	11.4	75	16.0
Wassermann serum neg.	259	85.9	130	89.1	389	
Wassermann serum doubtful	3	.009	1	.007	4	.009
Total spinal fluids examined	282		132		414	
Wassermann spinal fluid, pos. (agree)	39	13.8	11	8.3	50	12.0
Wassermann spinal fluid, pos. (disagree)	7	2.4	3	2.2	10	2.3
Wassermann spinal fluid, neg. (agree)	219	81.2	113	85.5	332	82.6
Wassermann spinal fluid, neg. (disagree)	17	6.0	5	3.7	22	5.3

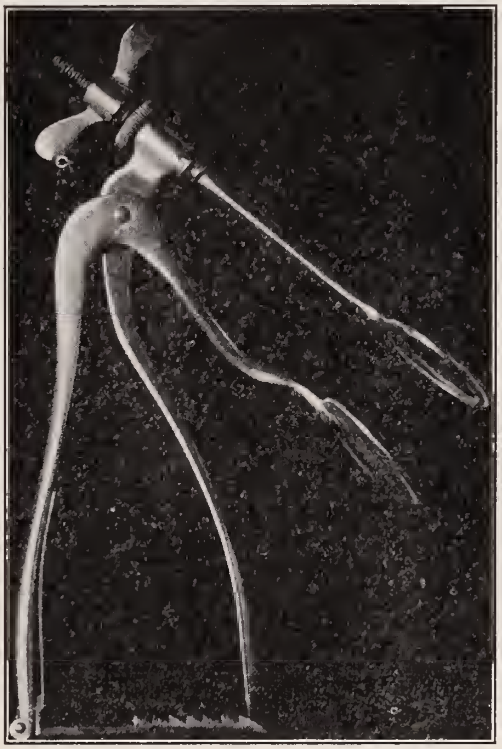
Every patient having a positive Wassermann of the blood or spinal fluid is given active antisyphilitic treatment. Our routine consists of six intravenous injections of arsphenamine, followed by a course of twelve hypodermic injections of mercury salicylate. After a course of treatment the blood and spinal fluid are again tested and, if positive reaction is obtained, another course is given. Intraspinal medication was tried some years ago, but our results were not successful.

NEW METHOD FOR TONSILLECTOMY.

J. A. Fulton, M. D.

ASTORIA, ORE.

To watch the skilled and experienced operator do a tonsillectomy might lead one to the belief that it is a simple operation. It has lead to the doing of tonsil work by almost every one holding a license to practice medicine. However, a glance into the fauces of a number of those who have passed thru the hands of the average operator and an observation of the lacerated pillars and mutilated tissues left behind must convince one that it is far from being a simple operation. Therefore, any thing which may lead to better work and a better understanding of the principles of the operation is of value.



Ninety per cent of tonsils to be removed may best be removed with the snare or guillotine and only a small percentage requires dissection. For reasons which seem good to myself I have always favored the snare, and have devised an instrument which is in the nature of a compression forcep and snare, which has proven to be very satisfactory in my hands.

It is made on the principles of the forceps with handles at right angles. One blade of the forcep has a flat surface on the distal end that is intended to rest upon the cheek over the external surface of the ramus of the jaw. The other blade is provided with a ring on the end with a groove to admit and conceal a snare. The snare is controlled by a screw working on a shaft, running thru the blade of the instrument. It requires about one minute to pull the wire thru the tissues beneath the tonsil. I am sure a slowly acting snare is best. The photograph herewith makes the mechanism quite plain. It does not, but it should, show the handles at right angles, and the ring bent toward the opposite blade at an angle of ten or fifteen degrees.

In operating with this instrument I proceed as follows: With a forcep-tenaculum I lift the tonsil out of its bed, and bring it forward so as to rest upon the inner surface of the ramus of the jaw. In this position the tonsil is brought plainly up into view. If it is deemed advisable at this stage I incise the mucous membrane between the tonsil and the posterior pillar. This is not necessary as a rule. Then I slip the ring of the instrument down over the tenaculum, and firmly down over and around the tonsil. Drawing on the tonsil, it is worked up into the ring, when the forceps are closed firmly and the tonsil is seen to bulge up thru the ring. Care in applying the ring must be observed, so as to be sure that the plane of the ring is the same as that of the inner surface of the ramus, so that, when the forceps are closed, the ring crowds down the tissues surrounding the tonsil and rests upon the surface of the bone. When in this position the rest of the inner blade of the forceps lies just outside the line of the teeth and does not obstruct the view of the operator. The snare is now ready to be drawn thru the tissues at the base of the tonsil. While the snare is being drawn the tenaculum draws on the tonsil and holds onto it until it comes away. The instrument may be left in position and another instrument applied to the other side.

During this operation there is no hemorrhage and very little follows it. There are no damaged pillars or needlessly damaged fauces. The use of this instrument a few times and bearing always in mind the importance of the inner surface of the ramus as a base upon which the tissues are to be compressed makes the operation a most satisfactory one.

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EDITORIAL

BENEFITS OF RECIPROCITY.

For many years each state has supervised the increase of its medical practitioners by requiring applicants for license to take an examination before its medical practice board. For the benefit of physicians of adjacent states who might desire to attend patients in another state, reciprocity has been established for their convenience. This system has been based on the theory that some physicians are better qualified and, therefore, more desirable for attending the sick of a given state than others, whose fitness is of a lower grade. Previous to two years ago the state of Washington granted licenses to practitioners of medicine only after passing an examination before its medical board. Consequently the general quality of the physicians of this state are of a superior order. Two years ago, when the new medical practice act went into effect, it included a provision for reciprocity with other states having equal requirements for those taking their examinations. Since that time the examining board has construed this provision so liberally that reciprocity has been granted to twenty-four states.

The result of this wholesale reciprocity was illustrated at the examination held in Spokane last month. While only six persons appeared for license by examination, sixty-five applied for license thru reciprocity. Altho the former number might be reduced by the ordeal of examination, all of the latter were entitled to licenses by reason of reciprocity regulations. If the examing board continues its liberal policy of establishing reciprocity with an average of one state a month, a very short time will be necessary to grant such relations with all of the states. In fact, license by examination is now practically suspended in favor of license by reciprocity, in consequence of the large number of states already granted that privilege. Considering these facts, together with the legal recognition of every cult and freak form of medicine in existence, it appears that the state of Washington is to be the dumping ground for all sorts of practitioners and healers who wish to practice any kind of treatment on its citizens.

Some critics hold that all state examinations should be abolished and that only a national examining board should determine those fitted to treat the sick of the nation. Yet the policy has already been thoroly established for each state to protect the health of its citizens by methods of restricting practitioners thru its own examination. If these are well accepted reasons in favor of this latter practice, we submit that those persons who have accomplished reciprocity and its execution in Washington have a weighty responsibility on their hands for the present situation. Since it seems to be agreed that a necessity exists for measures to protect the health of its citizens, it is a reasonable query whether this policy of reciprocity has not been developed to an unwise and extreme extent.

INIQUITOUS BILLS BEFORE OREGON LEGISLATURE.

The present session of the Oregon State Legislature has among its members a number of men who should never have been elected, for the reason that they are distinguished by a lack of even the commonest form of common or horse sense. As a result of their activities there are several bills which if passed are destined to do a great deal of harm to the health of the people of Oregon. The Bulletin of the Portland City and County Medical Society says,

"The following is taken from Senate Bill No. 113, Sec. 8615, showing the audacity of the chiropractic:

> Chiropractic practitioners shall be subject to all state and municipal regulations relating to the control of infectious diseases, sign death certificates, and issue certificates of health as condition precedent to issuance of marriage licenses, and report any and all matters pertaining to public health to the proper health officers the same as other practitioners. Physicians licensed under this act shall have the same legal standing as physicians licensed under any other laws of Oregon. They shall observe and be subject to all state, county and municipal laws and regulations relating to the public health. Certificates, reports and papers so signed shall be accepted by all public officials as meeting all the requirements of the laws dealing with such certificates, reports and papers."

A second bill aims to provide a special licensing board for naturopaths and drugless healers. Its sponsor wishes to do away with the "knives and poison drugs" of the doctors and to substitute therefor the beneficent influences of fresh air, fresh water, massage, right thinking and a considerable number of other therapeutic agencies, all in the hands of anyone who wishes to use them and to prefix his name with the title "doctor". This bill has already passed the Senate but has not been brought up before the House.

A third bill is the antivaccination measure which was so signally defeated by popular vote in the November election. If any or all of these bills shall pass, progress in hygiene will be indefinitely blocked. For it is much more difficult to destroy practices (and laws) that have once been established than it is to prevent them from being established. All of these bills are sponsored by one and the same individual, whose pernicious activities in medical and other directions offer the principal ray of hope, in that there is a reasonable prospect that gives encouragement to the belief that he will hang himself, politically speaking, if given enough rope. Physicians everywhere should use their utmost influence with the members of the legislature to prevent the passage of these iniquitous bills.

CONTEMPLATED LEGISLATION OF INTEREST TO PHYSICIANS.

While the Washington legislature has passed no bills affecting medical practitioners, several have been presented which, if enacted, would concern them. The Bassett bill, designed to prohibit vivisection and all experimentation upon living animals, is one of the most dangerous measures yet introduced in the Washington legislature. It is, perhaps, superfluous to say that, should the bill become statute law, all research work must stop and an end will be had of the greater part of the tremendously valuable work now going on in various laboratories. It is an echo of the campaign waged in California last year, when the opponents of vivisection and of animal experimentation were overwhelmingly defeated at the polls by vote of the people. California decided that it was not ready to stop the clock. J. W. Gilbert, executive secretary of the League for the Conservation of Public Health, was able to secure from Representative Bassett the assurance that he would not press the bill for passage. It was pointed out to him that the law now prevents experiments on animals in the presence of immature pupils in the public schools and that any further enactment or extension of its provisions would be earnestly opposed. The present law specifically exempts medical colleges and dental colleges from its provisions and leaves the way open to study and research, should Washington at some future time have a school of either kind. While Mr. Bassett has agreed to drop his bill, it still remains in a house committee and interest in it from the standpoint of scientific medicine will not subside until it has been defeated.

The threats of one group of drugless healers to bring charges against their examining board for the purpose of impeachment has created an interesting situation at Olympia. Representative A. S. Kresky, of Lewis county, has announced that he would introduce a bill repealing the act under which hundreds of uneducated and untrained persons have been licensed to treat human ailments within the last year and a half. One group of drugless practitioners has prepared affidavits charging fraud and deception in the issuance of certificates by the examing board. These affidavits will be placed at the disposal of the legislature for such action as may be deemed proper.

The medical profession, while zealously upholding its own standards of practice, does not concern itself with the relative merits or demerits of any system of treating disease but it stands for proper standards of education, both professional and preliminary, for all persons who undertake to treat human ailments. It believes that giving licenses for practice to unqualified persons is a serious menace to public health and strikes at the very foundation of the community welfare, its productivity and its happiness. As a broad principle, the educational requirements for one system or method should not be less than for another. So overcolonized has become the drugless field that the practitioners of that cult are feeling the competition keenly. If the question were only one of finance, scientific medicine would be content to leave its solution to others but the danger to public health is a matter upon which the doctors, by reason of their education, training and experience, are best qualified to speak. The medical profession cannot assume the responsibility of agreeing to or advising any lesser qualifications for one system than for its own. If the legislature at Olympia, in face of the plain warning of scientific medicine. chooses to lower the standards, it must assume th full responsibility.

MEDICAL NOTES

OREGON.

The League for the Conservation of Public Health, which was organized in Portland on December 19, 1920, has made rapid progress. Central Valley and Lane County societies have voted to go 100 per cent into the league. Yamhill, Polk, Marion and Washington county societies have taken similar action. Wherever the physicians have been given an opportunity to learn of the objects and purposes of the league, they have endorsed the organization and have signified their willingness to put their shoulders to the wheel for better health thru scientific medicine.

New Members of Health Board. Last month Gov. Olcott appointed as members of the State Board of Health, Dr. C. J. Smith, of Portland, Dr. G. E. Houck, of Roseburg and Dr. J. H. Rosenberg, of Prineville, all well known physicians of years of practice. Considerable discussion is being conducted as to whether the secretary to be appointed by the new board shall be an Oregon resident or an experienced man from some other state.

Newly Appointed Health Officer. Dr. H. M. Francis, of Corvalis, has been appointed health officer in place of Dr. H. J. Anderson, resigned. There seems to be some uncertainty as to the amount of the salary to be paid and who is to be responsible for the same. The doctor assumes the office until such time as the city officials make permanent arrangements.

Public Servant Honored. Dr. Alfred Kinney, of Astoria, has resigned after four years service on the Port Commission for that city. The commission took this occasion to express its appreciation of the services of the doctor in originating the idea of port development and has placed the honor on him of having conducted the work with great persistence and self sacrifice on his part. It was stated that the results of his labors would benefit all of the Pacific Northwest.

Doctor Exonerated. Dr. William Kuykendall, of Eugene, was last month exonerated in the Federal Court of a charge of malpractice. Owing to testimony presented in the doctor's favor, the judge directed that this verdict be returned.

Baker County Medical Society held its annual meeting with election of officers Jan. 17. Dr. G. G. Gordon was elected President. Dr. J. W. Hoff, Vice-Pres.; Dr. A. W. Tiedman, Sec.-Treas.; and Dr. T. J. Higgins, censor.

WASHINGTON.

Special Wards for Mental Cases. Under instructions from the Surgeon General's Office, at Washington, arrangements have been made for the concentration at the Western Washington Hospital for the Insane, at Steilacoom, of all nervous and mental cases of former service men from the district of Washington, Oregon and Idaho. These patients will occupy two wards in the hospital under the care of special medical attendants and trained nurses.

School Clinic Abolished and Retained. By a recent decision of the Supreme Court the school clinic, of Seattle, conducted for a number of years, was ordered abolished. According to an arrangement with the city Board of Health, the clinic will be conducted under its direction and supervision by which the children's clinic will be maintained with supervision and handling of communicable diseases.

Maintainance of Homeopathic Theories. A recent resident of King County died, leaving an estate of more than $100,000. One section of the will directs that most of this amount be devoted to propagating the theories of Hahnemann. The testator states that seven-eights of all human ills are attributed to "psora", defined as the itch, the other one-eighth being due to social diseases. Ordinary medicine is valuless. Gold, silver, and other metals, ground to a powder, mixed with a little water and sugar of milk made potent to the "decillionth power", he claimed to be effective for all human ills. A brother of the dead man is contesting this will.

Too Much for the Judge. The drugless healers' controversy was put up to the Supreme Court for decision, when A. H. Wells objected to his license and wanted it changed. Judge MacIntosh says that no supreme judge can tell whether a man is a practitioner of mental therapy or just an expert in suggestive therapeutics. The complainant objected to this latter classification, because he is likely to be classed as a hypnotist, while in realty he is a Simon-pure mental therapist. If the learned judge is stumped in making such a meticulous segregation of classified healers, how can an ordinary mortal be expected to choose with discretion his own most needed sort of manipulation.

Medical Board Examination. Last month the semiannual state board examinations were held in Spokane. Six applicants took the examination, one being a woman. At the same time sixty-five applicants were licensed to practice under reciprocity qualifications. Dr. L. M. Sims, of Kalama, was elected chairman and Dr. William O'Shea, of Spokane, secretary for the ensuing year.

High Heels Tabooed. The osteopaths hope to pass a bill thru the legislature, prohibiting the wearing of heels more than one and one-half inches high, the same not to go into effect until five years hence, so that the shoe dealers can get rid of their stocks on hand. They claim high heels to be a crime, being an injury to the race as well as to the individual. It conduces to race suicide by decreasing child bearing power, besides producing deviation of the spine and internal organs.

Hospital Superintendent. Dr. R. J. Carey, of Seattle, who for some time has been connected with the State Antituberculosis League, has been appointed superintendent of the Gray's Harbor Tuberculosis Sanatorium, at Elma. The institution is nearly completed and ready for patients.

Lewis County Medical Society at its annual meeting elected the following officers for the ensuing year: Pres., F. J. Hackney, Centralia; Vice-Pres. Harry Feagles, Chehalis; Sec.-Treas. Rush Banks, Centralia.

Spokane County Medical Society at its annual meeting elected the following officers for the ensuing year: Pres., J. D. Wendell; Vice-Pres., C. H. Weisman; Sec., O. M. Rott; Corres. Sec., E. J. Lawerence; Treas., M. M. Patton; Board of Censors, C. E. Butts, J. M. Gunning, A. R. Cunningham.

Pierce County Medical Society at its recent annaul meeting elected the following officers: Pres., W. A. Monroe; Vice-Pres., J. P. Kane; Sec.-Treas., W. B. Penny.

New County Nurse. The duties of county nurse for Thurson County will be assumed by Miss L. M. Carpenter, of Rochester General Hospital, N. Y.

Broken Arm. Dr. E. K. Wolfe, of Palouse, had the misfortune to break both bones of the right arm while cranking his Ford.

Dr. H. O. Norris, of Pengree, N. D., has located for practice at Napavine, which has been without a physician for a number of months.

Dr. V. C. Cleveland, formerly of Chewelah, has located for practice at Newport.

Dr. L. L. Rogers, of Newport, has located for practice in Spokane.

Dr. Frances Houston, of Kalispell, Mont., has moved to Spokane for practice.

Dr. J. B. Couche, of Entiat, left last month for San Francisco, where he will reenter the U. S. Army Medical Service. During the war he served with rank of Captain.

Dr. W. S. Bardwell, recently of Spokane, has located for practice at Newport.

Medical Wedding. Dr. H. W. Coulter, of Montesano, was married last month to Miss Hazel Ward, of Entiat, the ceremony taking place in Wenatchee.

OBITUARIES.

Dr. W. W. Oglesby of Cottage Grove, Ore., died Dec. 26, 1920, from a complication of diseases and old age. He crossed the plains in 1853 from Missouri to Oregon. He practiced for thirty years at Cottage Grove.

Dr. Clarence M. Parks, of Tacoma, Wash., died Jan. 19, 1921, aged 57 years. At the time of his death he was physician in charge of the Federal Prison at McNeil Island. For two years, beginning 1901, he was superintendent of the Western Washington Hospital at Steilacoom.

Dr. Carl C. Griffith, of Burns, Ore., died Jan. 1, 1921, after an illness of several weeks. He was born in 1859 near Salem. After attending the schools of this city he graduated from the Medical Department of the University of Oregon. He located for practice in Burns, in 1908, and retired in 1918.

SOCIETY MEETINGS.

OREGON

PORTLAND CITY AND COUNTY MEDICAL SOCIETY.

Pres. Paul Rockey, M. D., Secty., T. H. Coffen, M. D.

The regular meeting of Portland City and County Medical Society was held at Portland, Ore., Jan. 19, 1921.

The coroner, Dr. Earl Smith, reported that he has arranged for all autopsies to be performed by Dr. Benson or Dr. Menne, of the Department of Pathology of the Medical School. Heretofore, autopsies, while satisfactory as to immediate cause of death, have not always been complete, nor has the material been available for instruction.

Dr. F. R. Menne reported an unusually interesting autopsy on a man of 40 who died suddenly. This disclosed acute cardiac dilatation and hypertrophy, obliterative sclerosis of coronary artery, luetic arteriosclerosis, interstitial myocarditis, diffuse nephritis, emphysema of lungs and edema of brain. These lesions were described in detail.

Dr. A. E. Rockey showed two patients operated upon for cancer of the stomach in 1913 and 1915 respectively. In 1915 he reported five such cases before the society. There was recurrance in but one. The operation was Bilroth's first method. He showed the specimens removed at operation. The patients are well.

The legislative committee reported activities at the legislature affecting public health. Perinicious chiropractic bills have been presented, one of which was quoted.

COOS-CURRY COUNTIES MEDICAL SOCIETY.

Pres., C. E. Low, M. D., Secty., P. J. Kizer, M. D.

Coos-Curry Counties Medical Society held a meeting at Marshfield, Ore., Jan. 7, 1921.

Following officers were elected: Pres., A. L. Houseworth, Marshfield; Vice-Pres., V. L. Hamilton, Coquille; Sec.Treas., F. M. White, Marshfield; Delegate to State Association, L. G. Johnson, Marshfield; Councilors, Russell Keizer, North Bend; R. V. Leep, Bandon; W. L. Pemberton, Myrtle Point.

Three new members were elected: Drs. John Weimer, Powers; C. W. Hamilton, Myrtle Point; Wm. Horsefall, Marshfield.

Decided to hold future meetings on the last Tuesday of every other month, beginning with February. Also to hold three of the meetings in the towns of the Coquille Valley.

The following resolution was unanimously adopted:

Resolved, in consideration of a proposed measure read before the society on contract practice, gotten up by the Committee of Fifteen, that the proposed measure be returned to Mr. Fred Endicott, who presented it before the society, with the statement that the Coos-Curry Medical Society will not support any kind of proposed legislation which allows the employer of labor to enter into a contract with any physician, physicians or hospital association for the care of his or their employees, without the majority consent of his or their employees after a secret ballot, expressed in writing, which ballot shall be aften ten days notice is given to the employees.

Copies of the resolution were voted to be sent to the Governor, Secretary of State, State Accident Commission, State Labor Commission, President Oregon State Medical Association, Committee of Fifteen, Loyal Legion Loggers and Lumbermen, local state senator and representatives.

WASHINGTON.

KING COUNTY MEDICAL SOCIETY.

Pres., H. D. Dudley, M. D.; Secty., H. J. Knott, M. D.

The regular meeting of the King County Medical Society was held in the Masonic Club rooms, Seattle, Wash., Jan. 3, 1921 at 8:15. The minutes of the previous meeting were read and approved.

PAPER

Treatment of Sarcoma with Radium. Dr. S. W. Mowers read this paper.

Dr. H. B. Thompson opened the discussion, followed by Drs. A. Jordan, M. N. Garhart and B. T. King.

The reports of the following committees were read and accepted. The report of Board of Trustees, Program Committee, Membership Committee, Committee on Legislation, University Extension Committee, Credit Bureau Committee, Entertainment Committee, Industrial Service Commmittee.

Drs. O. C. Christmann, O. A. Nelson, G. I. Birchfield, H. S. Naramore and C. A. Galbraith were voted into membership.

The following officers were elected: President, H. G. Lazelle; Vice-President, Copeland Plummer; Secretary-Treasurer, B. T. King; Trustees, D. C. Hall and H. J. Knott; Delegates to State Medical Association for the two year term, H. D. Dudley and D. H. Palmer; For the one year term, I. A. Parry, O. F. Lamson and C. E. Guthrie.

The second regular meeting of the Society was held Jan. 17, President Lazelle presiding. Minutes of the previous meeting were read and approved.

PAPER

Etiologic Factors of Flatulence. By Dr. Harry Blackford. He discussed the chemistry of food digestion and spoke of the condition as found in chronic gastritis and achylia gastrica and the bacterial phases of food decompositions; also of the extraordinary tendency of yeast bread toward producing flatulence which could not be successfully treated unless omited from the diet. Dr. C. S. Leede discussed this paper.

X-ray Diagnosis of Genitourinary Conditions. By D. R. F. Hain. He discussed the various salts used in pyelography. The percentage of urinary calculi shown in roentgenograms varies in different clinics and depends upon the amount of calcium in the stones. This paper was discussed by Drs. J. H. Snively and M. F. Dwyer.

The Average Patient. By Dr. L. J. Palmer. His deductions were made from 1,000 patients, on whom complete examinations had been made. He gave the percentages of the different pathologic conditions encountered. The paper was discussed by Drs. P. V. von Phul, C. F. Davidson, E. O. Jones, A. R. Robertson and H. J. Davidson.

On motion of Dr. H. H. Canfield the president appointed a committee of Drs. Canfield, Palmer and Underwood to request the Board of Public Works to permit doctors to park cars in such places and as long as they choose.

WHITMAN COUNTY MEDICAL SOCIETY.

Pres., F. A. Bryant, M. D., Secty., M. J. Beistel, M.D.

The Whitman County Medical Society held its meeting Jan. 10, at St. Ignatius Hospital, Colfax, attended by fifty members and visitors.

Dr. J. T. Mason, of Seattle, read a paper on goitre. He presented a map showing the existence of goitre in different localities. The paper was illustrated by lantern slides.

Dr. M. M. Patton, of Spokane demonstrated laboratory methods.

Dr. Frederick Epplen, of Spokane, gave a clinical and pathologic address on tuberculosis, exhibiting specimens to illustrate the paper.

Dr. C. B. Ward, of Spokane, presented a number of roentgenograms, illustrating various diseases and interpreted the readings of the same.

Dr. Frank St. Sure, of Colfax, discussed teeth and tonsils as a source of disease. The paper was discussed by physicians and dentists who were present.

Dr. Otto Rott, of Spokane, discussed pulmonary tuberculosis.

Dr. H. P. Marshall, of Spokane, gave an address on the league for the conservation of public health.

During the course of the meeting several operations were performed by members and visiting physicians.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Heart Affections. Their Recognition and Treatment. By S. Calvin Smith, M. S., M. D. Instructor in Medicine, University of Pennsylvania Graduate School: Formerly Special Cardiovascular Examiner, U. S. A. etc. Illustrated. Cloth 440 pp. $5.50. F. A. Davis Co., Philidelphia, 1920.

This book emphasizes the general experience of cardiovascular examiners during the war that the general practitioner was usually surprisingly lacking in clear understanding of heart disorders and frequently either attributed the most absurd significance to systolic murmurs or failed to recognize the state of the myocardium to be of chief import. In short, the mass of medical men were deficient in diagnosis of cardiac disorders. This work is an admirable treatise on heart affections, including arteriosclerosis and aneurism. The section on arrhythmias is one of the clearest expositions that the reviewer has seen and the chart for making a rapid diagnosis of the various varieties is a valuable contribution. The author mentions a useful and not commonly appreciated means of helping many patients suffering from low blood pressure, dizziness, fainting or weakness, in the abdominal belt to support the splanchnic vessels. We should differ with the writer in his statement that tuberculous involvement of the pericardium is of infrequent occurrence. This sign of compression of the lower lobe of the left lung in pericardial effusion is an important one.

In the discussion of angina pectoris the writer is inclined to scout the existence of false angina and regards such cases as milder clinical types of the grave disorder. In women, particularly, it is not uncommon to observe severe anginas disappear altogether in time, and in many patients the trouble is secondary to local infections and intoxications, the removal of which may cure the angina. This is seen after removal of focal infections and abdominal infections. It is not possible to be too certain of the prognosis in angina pectoris, as patients may live a great many years in good health after the most startling attacks. General bodily exhaustion may cause angina. The book as a whole is the best practical, concise contribution to the subject by an American writer that is known to the reviewer and is the direct outcome of the vast experience acquired by heart men in that later unpleantness—the Great War. WINSLOW.

The Form and Functions of the Central Nervous System. An Introduction to the Study of Nervous Diseases. By Frederick Tilney, M. D., Ph. D., Prof. of Neurology, Columbia University, etc., and Henry Alsop Riley, A. M., M. D., Association Neurology, Columbia University. Cloth, 1,020 pp. 763 Illustrations. Paul B. Hoeber, New York, 1921. 12.00.

A valuable work is this year made available to those interested in the study of nervous diseases. The form and functions of the central nervous system is the well chosen title, which indicates the subject and purpose of this book. The detail of the development of the different divisions of the nervous system is given in sequence, but the method of presentation is away and beyond the routine of previous texts. In each subdivision the reader is led to an appreciation of the significance found in the evolution of the part, and finally to place its proper clinical meaning and application in the practice of medicine. The interests in life give the central theme, and variations from this the incidents of disease. Attention is called to the fact that every organ and system in the body has its well recognized series of functional diseases, so the estimate that over fifty per cent of the physician's work has to do with diseases of the nervous system hardly seems an exaggeration.

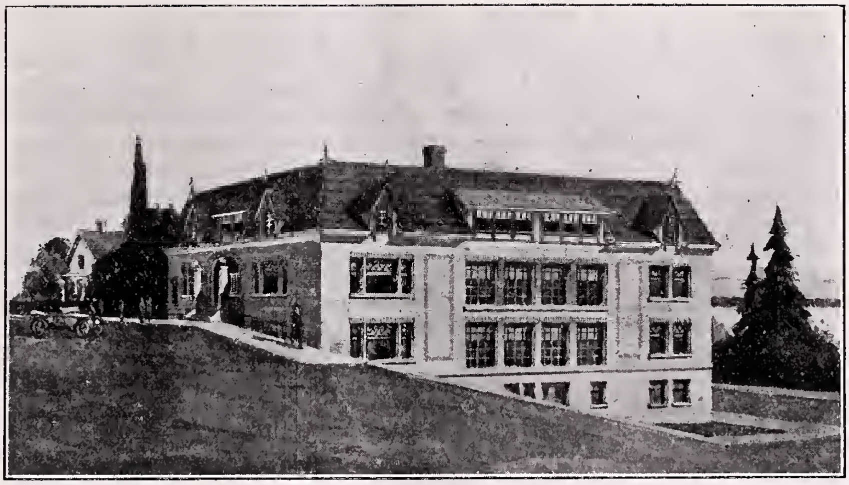
The authors, who have directed the teaching in the neurological deparment of Columbia University thru a number of years, have recognized the need of the student, in their classes and outside, for such a fundamental knowledge as is set forth herein. This includes an undersanding of the facts of embryology, histology, anatomy and physiology so that the neurologist may be able to read them rightly into the normal life of the individual, and then in turn interpret correctly the variations that make disease. The whole is an introduction to the study of nervous diseases. Original illustrations and charts, together with the table of supplementary references and a full index add to the finish of a crefully made volume. GULICK.

Clinical Ophthalmology for General Practitioner. By A. Maitland Ramsay, M. D., Fellow Royal Faculty of Physicians and Surgeons, Glasgow; Lecturer on Ophthalmology, University of Glasgow, etc. With Foreword by Sir James MacKenzie, M. D., F. R. S. 500 pp. $16.35. Oxford University Press. London and New York, 1920.

This is the best book of its kind the reviewer has ever read and is one which every oculist as well as the general practitioner should have in his library. Before taking up eye work, Ramsay practiced medicine for ten years and his book gives not only the views of a skilled oculist and teacher, but also illustrates in a remarkably clear and concise manner the relation of ophthalmology to general medicine. An idea of the contents can be given by citing the headings of a few chapters. Significance of a "watery eye", clinical significance of edema of the eyelids, clinical significance of a "blood-shot eye", clinical significance of exophthalmos. Eyestrain and its consequences, the pupil in health and disease and many other chapters are of special interest to the general practitioner, but every chapter contains technical information of the highest value to oculists as well. The latest advances in research which have been verified by clinical experience are mentioned, among these the use of ethyl-hydrocuprein in treatment of pneumococcus infections of the cornea and conjunctiva. Operative procedures are also discussed. Not in recent years has the reviewer taken keener delight or profited more in reading a book. MATTICE

Tropical Ophthalmology. By Robert Henry Elliott, B. B., B. S. (Lond). Sc. D. (Edin), F. R. C. S, (Eng.) Lieutenant-Colonel I. M. S. (Retired). Late Superintendent of the Government Ophthalmic Hospital, Madras, etc. With 7 plates and 117 illustrations. 507 pp. $12.50. Oxford University Press, London and New York, 1920.

This book is something new in the literature of ophthalmology, and does great credit both to the author and the publisher. To all oculists it is of intense interest, and will be found full of practical suggestions, whether their practice is located in the tropics or elsewhere. It is the reviewer's opinion that no doctor, leaving for general, missionary or government practice in the tropics, should go without this book. The section devoted to the instruction of the tyro in cataract extracting is most explicit. The author has paid attention to the finer details but at the same time has not lost sight of the practice from a broader, humane and economic standpoint.



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To call attention to all its interesting points would mean practically to copy the entire book. Some of the many valuable chapters deal with customs of the native practitioners; the effect of tropical light; the injuries inflicted by animals; parasitic diseases; cataract extraction. The work is especially well illustrated with original plates, many of which are in colors. A, large number of oculists in the Northwest will recall with pleasure and gratification the visit of the author and the excellent clinics which he conducted. The reviewer had the pleasure of visiting Col. Elliott's former clinic in Madras, India. BENTLEY

1919 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 1331 pages, 490 illustrations. Philadelphia and London: W. B. Saunders Company. Cloth, $12.00 net.

The papers produced during 1919, some of which were published last year, have the attractive merit of freshness and completeness. Fifty-four contributors have treated over one hundred subjects, ranging from the comprehensive presentation address to the most technical investigations. A general survey suggests certain of these papers as being more helpful to the active practitioner, among which may be mentioned "Suturing of the Arteries Supplying the Stomach and Duodenum, and Their Relation to Ulcer." The conclusions definitely declare that, along the lesser curvature of the stomache and in the first inch of the duodenum, the anatomic arrangement is such that thrombosis is predisposed, and infection with ulcer has easy sequence. The paper on "Routine Management of Duodenal Ulcer Cases" is excellent, and was published in full in this journal.

"Early Lesions of the Gall-bladder" is a paper full of suggestion and places before us a group of clinical pathologic conditions, in the face of which most physicians who favor cholecystectomy in cholecystitis would hesitate to perform the operation. These conditions, nevertheless, are probably causative of definite clinical symptoms. There are fibrosis, fatty infiltration, lymphatic infiltration, edematous villi and deposits of lymphoid material. The stage of infection would determine the conditions present. Balfour has written on the utility of the rubber tube in intestinal surgery and implies that it may be used, not only at the operating table where a growth of the sigmoid has been resected and an anastomosis performed, but in spasm, for instance, which sometimes forms Hirschsprung's disease, where the fibers at the rectosigmoidal junction are anatomically contracted. There are many papers on genitourinary subjects, all of interest, and Kendall's work on the isolation and function of iodine compound found in goitre occupies over one hundred pages. FORBES

A Text-Book of Biology. For Sudents in General, Medical and Technical Courses. By William Martin Smallwood, Ph. D., Professor of Comparative Anatomy in the Liberal Arts College of Syracuse University. Fourth Edition, Thoroughly Revised. Illustrated with 229 engravings and 3 Plates in colors. 308 pp. $3.50. Lea & Febiger, Philadelphia and New York, 1920.

This work seems addressed to undergraduates rather than to advanced students. For such it is admirable. For the advanced student there is much of interest and instruction. The fundamental principles of biology are first portrayed, and these are then illustrated by both animal and vegetable life. Beginning with unicellular organisms, this illustration passes to higher types, especial attention being given to the digestive and reproductive systems. Parasiticism, adaptation and disease, heredity and evolution are discussed. There is much of interest and information in the book. The illustrations are numerous and excellent. WEST.

The Essentials of Histology. Descriptive and Practical. For the Students. By Sir Edward Sharpy Schafer, F. R. S. Professor of Physiology in the University of Edinburgh, etc. Eleventh Edition: 577 pp. $4.50. Lea & Febiger, Philadelphia and New York, 1920.

When one views the splendid illustrations of this book, the simplicity and thoroness of the text and the admirable arrangement of the subject matter discused, he waxes enthusiastic over the author's work. But when he reads that the epithelium of uriniferous tubules, renal pelvis, ureters; the epithelium of the fallopian tubes, uterus and upper part of the vagina, arises from the mesoderm (the connective tissue layer), he wonders if the author is right and the usual conception wrong, or vice versa. The illustrations are so profuse and so splendidly executed, that in themselves to the graduate they offer a thoro and speedy review of histology. WEST

Syphilis. By Lloyd Thompson, Ph. B., M. D., Physician to the Syphilis Clinic, Government Free Bath House, etc. Illustrated with 81 engravings and 7 plates. $7.00. Second Edition Thoroughly Revised. Lea & Febiger, Philadelphia and New York, 1920.

The subject is attractively treated and covered as fully as a work for quick reference should. If anyone wishes to go deeper, the bibliograph given points the way. The classification is consecutive and simple and the index is good. The author has drawn quite largely from contemporary opinion, but not so as to deprive the work of the impress of his own professional personality. Above all the book is decidedly readable and well balanced. There is no particularly outstanding feature, but the author has given an attractive summing-up of the state of our knowledge of syphilis the day he went to press. CRABTREE

French-English Medical Dictionary. By Alfred Gordon, A. M., M. D., (Paris). Late Associate in Nervous and Mental Diseases, Jefferson Medical College, etc. 161 pp. $3.50. P. Blakiston's Son & Co., Philadelphia, 1921.

This volume is offered for the aid of those seeking scientific medical information from French literature. It is not intended to teach the French language. It is a compilation of French medical terms, each followed by its pronounciation spelled in English to convey this pronounciation as nearly as possible by the printed page. A key to this pronounciation is also submitted. If one studies French medical literature, he will find this little book of great assistance. SMITH.

NORTHWEST MEDICINE

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ORIGINAL CONTRIBUTIONS

CERTAIN PROBLEMS CONNECTED WITH THE SURGERY OF THE GALL-BLADDER.*

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Any consideration of gall-bladder surgery at once suggests certain outstanding problems: the direction of the incision, the preferred method of drainage, suture or drainage of the common duct, and how in the individual case to decide between cholecystostomy and cholecystectomy.

The Incision. As a rule an oblique incision that parallels the costal border is to be preferred, as this gives a direct and wide exposure of the liver, gall-bladder and ducts. In addition, this incision does not divide so many nerve fibers, and it provides a greater security against postoperative hernia.

Of prime importance is the length of the incision. This must be sufficient to secure an absolute and adequate exposure of the operative field.

Drainage. In cholecystectomy the question of drainage is paramount, for if not adequate a subphrenic abscess may be established. The best drainage is always dependent drainage which in many cases is best secured thru a counter incision at the bottom of Morison's pouch. If this does not provide adequate drainage, then it must be made thru the abdominal incision, so that by no chance will there be an accumulation of fluid at any one point which may be dispersed by the respiratory movements.

In fulminant acute cases of cholecystitis, the only immediate procedure, as a rule, should be the establishment of gall-bladder drainage. It is very desirable to carry the acute gall-bladder over to the subacute stage before the final operation. After the acute symptoms have subsided and the temperature has remained normal for a period and the patient's general condition has become stabilized, then a cholecystectomy may be performed.

In the preliminary operation in a grave risk, the adhesions should be separated only sufficiently to meet the absolute requirements of drainage. In these fulminant cases, as soon as the gall-bladder is opened, a tube is inserted and nothing more is done surgically. Around this tube a quantity of iodoform gauze, well wrung out, is lightly packed, and beyond this an abundance of gauze is inserted around all the sides of the short abdominal incision. No stitches are used, provided the incision is short and the gauze packing adequate.

After the removal of a stone from the common duct, if the passage of the bile thru the ampulla or the gall-bladder is assured, then the entire duct lumen may be closed with fine chromic gut. In the following cases, however, drainage of the common duct is demanded: If there has been a stone in the ampulla, if the duct mucosa has been so injured as to cause hemorrhage, if there is a probability of postoperative closure of the duct by swelling. In cases in which drainage of the duct is not required and the duct is sutured, a drain is placed near, but not against, the line of suture.

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*Read before the Twenty-sixth Annual Meeting of Utah State Medical Association, Ogden, Utah, Sept. 7-8, 1920.

Cholecystectomy vs. Cholecystostomy. A question which often presents itself is whether the gall-bladder should be removed or drained. A study from case histories and our experience, that too often gall-bladders which had been drained gave later trouble which necessitated their removal, has made us adopt the following general rules:

The gall-bladder is removed in the following conditions:

(a) If there has been an acute cholecystitis,
(b) if there is a stone in the cystic duct at the time of operation,
(c) if the cystic duct is hard and thickened from the former presence of a stone,
(d) if the gall-bladder wall is thickened.

The gall-bladder is not removed, if the patient has never had acute cholecystitis and the gall-bladder presents a normal appearance.

The question may be raised, why leave the gall-bladder in any case, since good health is possible without it? Experience has shown that, after the removal of the gall-bladder, or if it has failed to function for a considerable time because filled with stones, the common duct will often become dilated. Judd, of the Mayo Clinic, has shown that the common duct to some extent compensates for the gall-bladder by storing bile. Just as soon as the common duct begins to store bile it is subject to the same tendency to the formation of stones as existed in the gall-bladder. It would seem far better to take a remote chance of future recurrence of trouble in the gall-bladder than a considerable chance of the occurrence of common duct stones.

Everyone knows how difficult is a repeated operation upon the common duct after the removal of the gall-bladder, especially if there are many adhesions. In addition to the possibility of the occurence of stones in the common duct, there is the probability of injury to the common duct in the process of removing the gall-bladder. It is common experience that, with the increased number of cholecystectomies, more patients are presenting themselves for operation on account of the divided common duct.

Cholecystectomy is the operation of choice under the conditions cited above, but it is an operation which is fraught with difficulty and carries with it a certain degree of hazard.

Conditions which point to the Cholecystitis Obstruction Cycle. Experience has taught that, if the mucous membrane of the gall-bladder is gangrenous, if there is chronic infection of the gall-bladder, if there is a stone embedded in the cystic duct, if the wall of the cystic duct is thickened, if the wall of the gall-bladder is thickened by scar tissue as a reaction to infection, then mere drainage of the gall-bladder, usually, tho by no means always, will be followed by recurrent obstruction and infection and in these cases cholecystectomy is recommended. On the other hand, if the gall-bladder has approximately normal walls, and if the cystic duct is approximately normal, then no matter what the size of the number of stones, if the operation is performed with due care, there will be rarely if ever a postoperative pathologic cycle.

In cholecystectomy the following points may be emphasized:

The gall-bladder should be exposed by an ample incision, so that there is free access to the base of the gall-bladder; the freeing and separation of tissue should be made by sharp dissection, care being taken not to injure the liver even slightly, so that oozing of blood and bile as well as infection may be avoided. The entire gall-bladder should be freed from its attachment, so that ample opportunity may be given for determining the exact place at which the gall-bladder ends and the cystic duct begins, the division being made just proximal to this point. The cystic artery should be isolated and tied separately.

It is well to emphasize further the necessity of most careful determination of the exact point at which the division should be made between the gall-bladder and the cystic duct. If the division be made too high, so that a small part of the gall-bladder is left, there may result, as I have seen, a formation of a diminutive gall-bladder, with distinct cholecystitis, accompanied by pus formation and the formation of small stone. If, on the other hand, the cystic duct be divided so near its junction with the common duct that the lumen of the latter is first narrowed by the pressure of the ligature, then totally occluded by swelling, there may arise an embarrassing temporary obstruction to the flow of bile. That there may be a correct division, therefore, it is essential to have ample room for work, and to maintain a clear, blood-free anatomic field.

The clinical results of cholecystectomy in many cases of pathologic gall-bladder are clinically as much better than cholecystostomy as nephrectomy of a pus-riddled kidney is better than a nephrotomy. The convalescence after cholecystectomy is usually as uneventful as is convalescence after a salpingectomy for chronic suppuration.

In cholecystectomy it has been argued that the surgeon would be at a great disadvantage, should there be later a necessity for operating for stone in the common duct. Nevertheless, in cases where cholecystectomy is definitely indicated, as noted above, it is comforting to remember that the common duct occupies a fixed position with definite land-marks, and that, if a bloodless anatomic field be maintained by sharp dissection, the duct will be found easily, even tho it is buried as deeply as possible under overlying adherent structures.

In stricture of the common duct we have found that the anastomosis between the gall-bladder and the duodenum is the point of election.

The Magnesium Sulphate Reflex as an Aid to Diagnosis. As one measure whereby to add certainity to the diagnosis we have been using Meltzer's magnesium sulphate test, as reported by B. B. Lyon, M. D. in the *Journal of the A. M. A.* Sept. 15, 1919. In the application of this method we have found that certain characteristics of the gastric and duodenal contents are fairly constantly present in gall-bladder disease.

(1) In many cases of cholelithiasis the gastric fluid in most cases is bile stained. When the fluid is clear, it does not mean, however, that gall-bladder disease does not exist, and more than half of the cases of cholelithiasis have a mild or moderate hyperacidity. The duodenal contents normally are clear and faintly bile tinged. A cloudy fluid from the duodenum means nothing, if it is intermittently cloudy or acid, or if upon microscopic examination it is found to contain stomach elements. In other words, one must be sure that the collected fluid is true duodenal content and not fluid from the stomach which has just spurted thru the pylorus. When the duodenal fluid is constantly cloudy and alkaline, and contains no pus cells, then inflammation of the duodenum or biliary tract is to be suspected.

(2) Of the first bile which is collected after injection of the sulphate solution, i. e., "common-duct bile", little can be said. Since starting this series we have had two cases of total obstruction of the ductus chloledochus. In these we found only duodenal and stomach contents. In one case, when the duodenal contents were cloudy and contained pus, the bile which followed injection of the magnesium sulphate was clear and contained only a few cells. We believed in this case that we were dealing with a catarrhal jaundice with no involvement of the biliary tract, and the clinical picture strengthened this belief.

(3) When the "gall-bladder phase" is absent, we have concluded that the cystic duct is obstructed by adhesions, by stone, or that the gall-bladder is hampered by adhesions. In cholelithiasis, when the cystic duct is patent, the bile from the gall-bladder is often more viscid and occasionally is cloudy and contains pus cells. A cloudiness due to precipitated bile salts often occurs in normal bile, when it has stood for some time. The color of the bile from the gall-bladder varies from almost black to a light brown, but is usually darker than the bile from the common or hepatic ducts. We have noted nothing peculiar in the color of bile from pathologic gall-bladders. Usually the bile from a normal gall-bladder is prompt in making its appearance, coming in from two to six minutes after the injection of the magnesium sulphate solution. A greatly retarded appearance of the gall-bladder phase occurred in two cases, in which gall-stones were found at the operation. Occasionally, too, we find an unusually small amount (10 to 30 cc.) of gall-bladder bile in cholelithiasis.

(4) Thus far the hepatic bile has served us only as a means of contrast with that from the gall-bladder.

In eight cases we have made the diagnosis of obstruction of the cystic duct previous to operation by the magnesium sulphate test. These eight cases all showed an obstruction of the cystic duct at the time of operation. In one case, in which it was not necessary to remove the gall-bladder, we had the tests repeated and secured a three-phase test following the operation, while before the operation we had been able to obtain only a two-phase test, the gall-bladder phase being absent.

If the gall-bladder is full of stones, no gall-bladder bile will appear, altho other indications also may prevent the delivery of bile from the gall-bladder. If the ducts are free and there is an infection in the gall-bladder, evidence of the infection will appear in the gall-bladder bile. Thus this test provides a valuable clue to the presence of chronic cholecystitis.

Of the 93 cases in which this test has been applied, we have operated on 33, and in 30 have verified the findings. In one case, in which we drained a gall-bladder which had contained a number of stones, repeated tests made after the fistula had healed showed the presence of gall-bladder bile which had been absent before the operation.

While this is a new test, and in many cases may not provide final evidence, nevertheless we are satisfied that it adds a valuable source of information in the diagnosis of gall-stones.

The common causes of death after gall-bladder operations are ether anesthesia, suboxidation from deep and prolonged anesthesia, trauma, and low blood pressure. The use of a local anesthetic, coupled with light gas and oxygen anesthesia, minimum trauma, secured by an ample incision, by sharp knife dissection, and by as brief an operation as is consistent with good surgery, blood transfusion if the blood pressure is low, and morphin in case of pain, obviate or minimize these causes. In addition the activity of the liver cells is increased by the application of local heat, and by abundant water. To this end large hot packs are used and adequate water equilibrium is established before and immediately after operation and are continued thru the acute postoperative phase.

Operations on the gall-bladder, like operations for exophthalmic goitre, must be individualized. For the uncomplicated case there is a mortality of from one to two per cent. The problems are presented in cases complicated by acute or chronic infection, by perforations thru the gall-bladder wall, by obesity, by nephritis, by cardiovascular or cardiorenal disease, by old age combined with obesity, by protracted jaundice. All of these factors greatly increase the risk. In such cases it is sometimes advisable to make first a simple drainage to relieve the jaundice, then wait for the curative operation until the margin of safety has been widened. In all serious cases the operation is especially safeguarded by using the pleasant and innocuous analgesia in conjunction with local anesthesia. By thus individualizing the operation and by the employment of the means mentioned above, the mortality of the bad risk cases has been reduced from 6.2 to 1.6 per cent. As our methods and control improve, the operability is correspondingly extended.

EARLY GALL-BLADDERS.*

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Every surgeon has opened the abdomen to drain or remove the gall-bladder and upon exploratory examination found no pathology manifest in the gall-bladder nor in any of the other related organs. From the history of the patient, gall-bladder disease was confidently expected and should have been found. The dictum that in this class of cases cholecystectomy is the operation of choice is obtaining an increasing favor, and forms a subject alive with interest at this time.

The patient comes complaining of stomach trouble, pain in the epigastrium or pain in the appendix. He may belch gas, have heatburn or waterbrash, discomfort or fullness after eating, nausea or vomiting. With these symptoms he may have pain, more or less definite, in the gall-bladder region. This presents the triune syndrome of gall-bladder, stomach and appendix trouble, without any one member of the triune predominating, and has been designated as a GSA history. Contrasted with it is a definite history, with all symptoms pointing to the right costal margin, which may be designated a RCM history.

A GSA patient, presenting himself to the surgeon, should have a most thoro examination before being submitted to an exploration, on the theory that there is something surgical in the abdomen and time enough exists to make a diagnosis after getting in. It will be comforting, in the event the exploration is negative, to have a carefully worked out history back of the surgeons's judgment.

This history should consist of a written record, of an insistent local and general physical examination, which is supplemented by all the laboratory and clinical tests thereby indicated. After examining all the rest of the body by history, the essential points to be considered in the abdomen are: the stomach as to waterbrash, heartburn, nausea, vomiting, food and soda ease, gnawing, burning or discomfort, special irritative articles of diet, general appetite and diet, weight maintainance, the liver and gall-bladder, jaundice, colic in the RCM, clay stool and bile vomit, the appendix. It is absolutely necessary in every case that the urinary tract be thought of and proved negative.

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*Read before Lincoln County Medical Society, Harrington, Wash., May, 16, 1920.
*From Spokane Clinic.

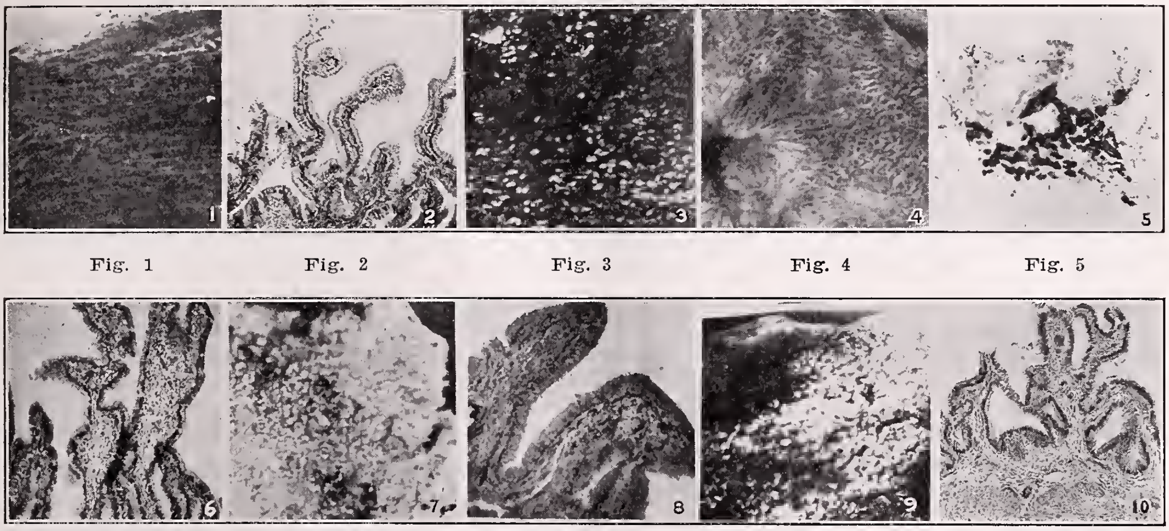

Fig. 1 Fig. 2 Fig. 3 Fig. 4 Fig. 5

Fig. 6 Fig. 7 Fig. 8 Fig. 9 Fig. 10

Figs. 1 and 2, Normal gall-bladder. Figs. 3 and 5, Strawberry with Lipold. Figs. 4 and 6, Strawberry without Lipoid. Figs. 7 and 8, Fish Scale gall-bladder with Lipoid. Figs. 9 and 10, Fish scale without Lipoid.

In the physical examination it is essential to have a stripped patient, for after all diagnosis is no gift, it is hard work. The physical examination should be made by the same routine as is followed in all cases, and should include, as a minimum, general inspection, accommodation to light, Rhomberg, knee jerk, inspection of the ears, eyes, nose teeth, the tongue, manipulation of the tonsils, thyroid, and superficial glands, examination of the lungs, heart, rectum and extremities, recording of the weight, temperature, pulse, blood pressure. The local examination should be saved for the last, i. e., the abdomen, which in the GSA case is negative.

The laboratory work necessary to be done in every case consists of twenty-four hour urine, hemoglobin, test meal, screening for six hour residue, immediate stool examination, Wassermann, duodenal aspiration and teeth ray. Out of these tests will assuredly grow others. It is safe to say that the surgeon who accepts a GSA case for exploratory operation, upon whom eight laboratory tests have not been made, is opening the road to harm to his patient. The GSA case will be negative in the main. Duodenal aspiration may solve the question of diagnosis in these cases, but is sufficiently recent to be looked upon as inconclusive. If focal infection exists anywhere besides in the gastroduodenoappendicohepatapancreatic system, i. e., the teeth, tonsils, the bowels, the sinuses, it should be cleared up first.

Finally, then, the patient must have a strong GSA history, troublesome enough to warrant an exploration, and be at least indefinite clinically and by laboratory tests, and have the exploration submitted to him with full explanation.

By high incision to the right of the median line the abdomen is opened. The exploratory examination is the foundation upon which surgical work is built. No surgeon, not a pathologist, can turn out consequential, result-getting work.

The stomach is examined and found negative. The appendix is brought up and removed and is practically negative.

In regard to the findings in the gall-bladder, duodenum and pancreas, all other conditions except the following are not found:

(1). All may be entirely negative. If so, we may expect cholecystectomy to yield a normal gall-bladder or marked chronic inflammation.

(2). The gall-bladder may have slight adhesions to neighboring organs or may have enlarged glands along its duct or accessory ducts, may be a white gall-bladder or a thick one. If so, it may again yield a normal gall-bladder, or one comparatively advanced in a stage of chronic inflammation.

(3). The pancreas may be indurated, as in chronic pancreatitis. Under the last condition the indication is cholecystostomy.

In the event that the first or second condition is present, the surgeon has the following lines of action to pursue:

(a). Close. If he does so the patient may be well served. On the other hand, someone may have to go in after the gall-bladder later.

(b). Cholecystostomy with drainage. Certain it is that, if this course is followed, the surgeon who goes in after the gall-bladder later will sweat.

(c). Cholecystectomy. It has been my observation, during a nine months study of gall-bladder disease in the Mayo Clinic, that the last procedure is followed.

Cholecystectomy in GSA cases yields, besides a normal gall-bladder (figs. 1, 2), the following conditions:

(1). Strawberry gall-bladder. This may be in the active stage, with lipoid present (figs 3, 5), or in the quiescent stage with no lipoid present (figs. 4, 6).

(2). Fish scale gall-bladder. This likewise may or may not have lipoid presents (figs. 7, 8, 9, 10).

Under present conditions the surgeon must go it more or less blind. May we not borrow a trick from our accurate friends, the urologists, and practice cholecystoscopy in these doubtful cases? Such an instrument will form the subject of a paper soon to appear.

INJURIES OF THE PANCREAS, WITH A REPORT OF A SINGLE CASE OF SUBCUTANEOUS INJURY.*

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On account of the depth of the pancreas and by reason of its anatomic barriers of defense, protected as it is in front, laterally and from above by the costal margins, abdominal walls, liver, stomach, colon and spleen, and from behind by the vertebral column and thick posterior abdominal walls, injuries, even in association with trauma to other abdominal viscera, would naturally be supposed to be infrequent; injuries uncomplicated by severe trauma to other organs would for the same reason be looked upon as an extremely rare phenomenon. A search thru the literature for reports of injuries to the pancreas has borne out this supposition.

In May, 1903, Von Mikulicz-Radecki,[1] in his address before the Congress of American Physicians and Surgeons, reviewed the literature up to that date, and "found in all forty-five cases of pancreatic injury, twenty-one penetrating wounds and twenty-four subcutaneous wounds from blunt force." Two years later, in 1905, Connell,[2] writing on gunshot wounds of the pancreas, was able to collect records of twenty cases of this injury from the literature. Seven years later, July 1912, Herman Fischer, writing in the *American Journal of Surgery,* reported a case of subcutaneous injury and, reviewing the literature on the subject, was able to collect at that date references to forty cases only. Commenting on the rarity of this condition he states: "In the pathologic Institute of Leipsic, there was found among 9500 autopsies in seven and one-half years only one rupture of the pancreas."

From 1912 to the present date, the author has found references to only fourteen additional reports on subcutaneous injuries to the pancreas, abstracts or original articles of which were available in eight cases. These facts have appeared to the writer to be sufficient reason to justify the report of the following case, together with a brief discussion of injuries to the pancreas in general.

The case I have to report is as follows:

Mrs. J. R., aged 41, mother of three children, weight 135 pounds. Past history negative except exanthemata of childhood.

Family history: Father died at 46 of apoplexy, mother at 62 of ulcer of the stomach, otherwise, negative.

Present illness: In brief, patient had sustained an abdominal injury and in consequence sought relief for constant and unremitting abdominal pain and persistent vomiting.

On July 1, 1918, about 8 p. m., while driving a Buick automobile and attempting to make a left hand turn at a street intersection, and at the same time avoid collision with an approaching motorcycle, her car ran off the grading and one of the front wheels struck a small tree. The impact of this collision threw the driver forward in such a manner that the steering-wheel was pressed sharply against her epigastrium. She states that immediately following this she was unable to get her breath, but that otherwise she did not suffer a great deal of pain. She was able unaided to get out of her machine, get into another car, and to be driven to her home, which was about six blocks from the place of accident. On the way home she vomited twice. On arriving home she did not go to bed immediately but reclined on the lawn in front of her home for about half an hour, after which she entered her house and went to bed.

Dyspnea, which was marked at the time of injury, did not abate. Pain in the abdomen soon became marked and gradually increased in intensity. Vomiting, the color and character of which was not noticed by patient, became more frequent. At

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*Read before Portland City and County Medical Society, Portland, Ore., April 21, 1920.

[1] Annals of Surgery, July, 1903.

[2] Connell: Ann. of Surg. Phil. 1905, XII. 724-729.

11 p. m. abdominal pain became unbearable. At this hour a physician was called who prescribed hot applications, gave morphine hypodermically, and left more to be taken by mouth. At 4 a. m. the doctor was again called. Morphine hypodermically was again given and more was left to be taken by mouth. At this time the patient was assured that nothing serious was the matter, and was told that the doctor could not be reached until the following night.

At 9 a. m. I was called but, as I was unable to go, a colleague kindly agreed to see the patient for me. He saw her at 10 a. m. He states that two hypodermics (one-half gr. morphine) were given at this time, after which she was taken to the hospital, where I saw her first at 12 o'clock noon, fourteen hours after the injury. I found her lying in bed, and perhaps on account of the opiates did not appear to be very seriously injured. The least exertion, however, brought on painful shortness of breath.

Temperature 97.4, pulse 88°, respiration 22. She voided urine soon after admission. The amount was not recorded but urine analysis showed a trace of albumin and a specific gravity of 1023. It did not contain sugar and there were no blood corpuscles. The pupils were narrowed somewhat and reacted sluggishly to light and accommodation. The facial expression suggested some distress. Examination of the chest was negative. Examination of the abdomen showed some tenderness to pressure over the entire epigastrium with no definite localized point of tenderness. There was no marked distention. Liver dullness extended one finger's breadth below right costal arch. Palpation, tho painful, also revealed it at this level. There was no marked rigidity and no other evidence of injury to the parietes.

On account of the fact that so much opiates had been given, it was impossible to come to any definite conclusion. It was thought on account of her general condition that perhaps no serious injury had been sustained but it was a case that should be watched closely. External heat, hot fomentations to abdomen and two and one-half per cent glucose solution per rectum was ordered. During the afternoon the patient became very restless. Pain in the abdomen gradually increased in intensity. Vomiting, which on entering was dark brown in color, now contained traces of blood. The pulse, temperature and respiration, however, did not vary a great deal. At 3:30 p. m. temperature 96.4°, pulse 90, respiration 20. At 6:30 p. m. temperature 98°, pulse 100, respiration 24.

An exploratory operation at this time seemed indicated and was advised. A consultation was asked for and Dr. Else, of Portland, was called who concurred in my opinion and assisted in the operation.

Operation. At 7 p. m. Ether anesthesia. Linear incision four inches long in mid line just above the umbilicus. On opening the peritoneum a small amount of thin brownish fluid exuded. No characteristic odor could be detected. The omentum, mesentery and parietal peritoneum showed a number of disseminated characteristic sulphur yellow spots of fat necrosis, varying in size from millet seed to split pea. The first and second portions of the duodenum and the first parts of the jejunum were markedly cyanotic, and appeared to be swollen. The first and second portion of the duodenum appeared to be pushed upward and forward. Examination of the gall-bladder and common duct was negative. The gall-bladder appeared to be of normal size and did not appear to be thickened. The lesser peritoneal sac was opened thru the gastrohepatic ligament. About 8 oz. of a brownish blood tinged fluid was found and was removed by sponging. The entire pancreas was swollen, congested and soft. The peritoneum covering the body was abraded in several places and oozing of this brownish serosanguinous fluid appeared to come from this region. The head of the pancreas was especially prominent. There was no apparent loss of pancreatic substance.

In order to examine more fully the head of the pancreas and, if possible, explore the common duct, the second portion of the duodenum was mobilized by dividing the peritoneum on its right. This was very easily done, as the duodenum was very prominent and appeared to be pushed forward by the swollen pancreas. No evidence of injury to the duodenum, stomach, liver or other viscera was found. There was no evidence of gall-stone disease.

Two cigaret drains, placed in contact with the body of the pancreas. were brought out thru the opening in the gastrohepatic ligament; one cigaret drain was placed in contact with the head of the pancreas, posterior to the duodenum. All three drains were brought out of the abdomen thru a stab wound in the right flank. The median incision was closed in the usual manner.

The progress of the case was very satisfactory. As I was called into military service four days later, I was unable to follow it thruout. Dr. Else, who kindly looked after the case after I left, has supplied furthur details.

Pain continued in a more moderate form for four days. Vomiting gradually became less frequent and stopped entirely, three days after the operation. Glucose, two and one-half per cent per rectum by Murphy drip, was given for six days after operation. Sugar at no time was found in the urine. Some feces and considerable gas were passed on the second day after operation, following 1 cc. of pituitrin. There was considerable drainage up to the sixth day, when drains were removed. On the tenth day skin sutures were removed. On Aug. 6, (35 days after the injury), the patient was discharged from the hospital as cured.

Two days ago I interviewed and examined the patient. She is in perfect health and is working every day in her grocery store. She has regained her normal weight. Urine analysis was negative.

In reviewing the literature, the facts brought out by Von Mikulicz-Radecki are interesting and instructive. Briefly, 45 cases reported, 21 penetrating and 24 subcutaneous. Of the penetrating, 12 were gunshot and 9 were stab wounds. Of the 12 gunshot, 5 were operated on with 3 recoveries; 7 not operated on, all died. Of the 9 stab wounds all recovered. In 7 of these cases the pancreas was prolapsed. In 2 cases it was replaced. In two cases only was there intraabdominal injury with risk of contaminating the peritoneal cavity.

Of the 24 subcutaneous cases 13 were not operated on, all died; 11 were operated on and 7 recovered.

Connell, in summing up his paper on gunshot wounds, states: "On reviewing these cases there will be found to be 20 cases, 11 deaths and 9 recoveries. Six cases not operated on, 6 died; 12 operated cases with 5 deaths and 7 recoveries. In 3 of these cases injury of the pancreas was not suspected or not found at all, all of which resulted fatally, leaving 9 cases operated on for gunshot wound of the pancreas, of which 2 died and 7 recovered.

In regard to drainage, there were three laparotomies with nothing done to the pancreas. No drainage, three died. Drainage was done four times; one died, three recovered. Suture of the pancreas one time, one recovered.

As the present paper has to do primarily with subcutaneous injuries, no especial study has been given to the penetrating wounds. I will simply state in passing that, since Connell's paper in 1905 to the present date, I have found references to nine additional gunshot and two stab wounds of the pancreas: Von Bergman,[3] Borchard,[4] Dopsy,[5] Momo,[6] Becker,[7] Borhardt,[8] Badini,[9] Finaly,[10] Fowelin,[12] Rusca.[11] Von Walzel.[13]

Fischer, in closing his article in 1912, states: "I have collected 41 cases, including my own. Among them are 37 in which the results are known. Five were not operated upon and died. Of 31 that come to operation 21 were cured and 10 died shortly after operation, about 60 per cent operative recoveries." Since Fischer's article the author has collected 14 additional cases, including his own, in 9 of which the result is known. Of these cases 6 recovered and 3 died, thus giving in all 46 cases in which the result is known. Revised from above, 38 came to operation, 27 recovered and 12 died.

Etiology. The most common factors causing subcutaneous injury of the pancreas proved to be blunt force, as passage of wagon wheel over the abdomen, crushing between cars, the kick of a horse, a blow against the upper part of the abdomen, falling against the edge of a table, burying under masses of earth, contusion from horn of bull (Van Dam's case), impacted horn of saddle (Dyde's case). The force of these injuries varied from a slight impact to a force of great intensity.

Pathologic findings vary with the time of operation, extent of injury and the portion of the pancreas injured. In general, injury to the head and body is more serious than injury to the tail, because of complications, as injury to the bile-ducts, ducts of Wirsung and adjacent blood vessels. Fat necrosis is always present after from twelve to twenty-four hours have elapsed. It may be absent earlier. Its presence is pathognomonic of lesion of the pancreas. The extent of injury varies from bruising to complete division of the pancreas, as in Garre's case. In Gulecke's case the common duct was lacerated. In Walther's case there was rupture of the coronary artery. In Villiere's case there was rupture of the splenic vein and artery. Turner's case was complicated by pleurisy with effusion. In Van Dam's case there was laceration of the pancreatic duct.

If the foramen of Winslow is closed congenitally, or if hemorrhage is slow and this opening becomes occluded from inflammatory swelling, a large hemorrhagic pseudocyst may develop behind the stomach. Hemorrhage may be appalling, as in Cowen's case. There are no cardinal symptoms. In general, there are those of peritonitis, pain in the epigastrium, rigidity of the abdominal muscles, especially in the upper quadrant. Dyspnea was marked in my case. Vomiting may be slight at first. It naturally increases in frequency and intensity, and usually contains blood. There may be a free interval after recovering from the initial shock in which the symptoms abate (Korte,[14] Garre,

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[3] Von Bergman: Berlin Klin. Wehnsehr. 1903. XI, 1182.

[4] Borchard: Berlin klin. Wchnschr, 1904. III 8-12.

[5] Dopsy: Orvasi helil Budapest, 1904-XVLIII-106.

[6] Momo: Gazz d' ost Milano, 1904 XXV—580-584. 761.

[8] Borhardt: Berlin klin, Wchnsch. 1904. XI, 53-58.

[9] Bordini: Ost. Magg. Rev. Scrent prat di Milano,

[7] Becker: Berti Z klin. chir Tubing, 1904, XIIV, 748-1906, 1-51-58.

[10] Finaly: Sebeszet Budapest, 1906.

[11] Rusca: Gazz, d' ost Milano, 1915.

[12] Fowelin: Arch f. klin chir Berlin, 1911.

[13] Von Walzel: Wein klin Wchnschr, 1914

[14] Korte: Ann. of Surg., 1912.

Fischer). The temperature and pulse are of little value. They may be normal or nearly normal for some time after the injury, especially if the injury is of the milder type. Urinary analysis is of value, if sugar is found. Leucocytosis may be present; in Fischer's case, 27,000, with 89 per cent polynuclear. Pain and vomiting usually become progressively worse.

Diagnosis is usually made at operation. Fat necrosis is pathognomonic of pancreatic lesions. In all cases of injury to the epigastrium and in cases in which bloody fluid is found in the abdomen at operation, the source of which cannot be determined, the pancreas should be examined. The presence of a cystic tumor in the epigastrium, together with history of injury, may suggest the diagnosis before operation.

Treatment. Statistics have shown that unoperated cases practically always terminate fatally. Therefore, operation is indicated in all cases. Schroeder's[15] statement that persistent unexplained abdominal pain is an indication for operation holds especially true in these cases. Garre and Randall are both credited with being the first to save patients by laparotomy. Randall's case (*London Lancet,* Feb. 1905) was that of a car man 42 years old who, while walking backward leading a pair of horses in a loaded van, got jammed between his own van and a stationary laden wagon. The pole of his van hit him in the epigastrium. At operation six hours later a tear two inches long was found in the body of the pancreas, running from the right and below upward and to the left, leaving a loose tongue-like process of the gland, the base of which was half the width of the organ. This was sutured by four silk sutures, the abdomen flushed with saline and an iodoform gauze packing was inserted down to the pancreas, and the rest of the wound closed. The result was ultimate recovery.

The same issue of the Lancet, commenting on this case states: "Here you see a distinct advancement in surgery of injury of the pancreas. Previously deplacement of a prolapsed pancreas or removal of a portion that could not be returned, or drainage of a traumatic cyst, was all that surgery had done for a damaged pancreas. The case is important and it marks the commencement of a new epoch. Tho it is certain that the cases in which surgical intervention will be successful will be few and far between."

Garre, in 1905, reported a case from his clinic, of complete tear of the pancreas, the edges of which were about the thickness of the thumb apart. The edges were sharp, as if cut by a knift. The splenic vein was intact. The severed tail of the pancreas was about 10 cm. long. With three posterior and three anterior fine silk sutures thru capsules and parenchyma, the defect was repaired and hemorrhage stopped. The sutured portion was isolated by tampons. Gauze was put around the pancreatic wound and up under the liver and brought out thru the original incision. Result, complete recovery.

Cowen (*Brit. Med. Jour.,* 1907) describes a remarkable case in which the patient, a man, was operated on four days after injury following a fall on the abdomen. On opening the peritoneum below the umbilicus liquid blood began to flow from all directions. After examining the abdominal and pelvic viscera without discovering any lesion, the hand passed upward came across a bulging semifluid mass above the navel. On opening above the umbilicus, blood was seen coming from a hole in the omentum between the stomach and transverse colon. The hole in the omentum was enlarged by tearing, and the clot was removed by handfuls. Blood welled up from the region of the pancreas, continuously obscuring everything so that a view of the source of the flow was impossible. "It was obvious that the only thing to be done was to trust to gauze pressure, and accordingly gauze was packed firmly against the pancreas and the back of the lesser sac, quite twelve yards being used. The end of the gauze was brought out of the wound at the level of the hole in the gastrocolic omentum." With the exception of pancreatic fistula at the time of Cowen's paper, 1907, the case went on to complete recovery.

Moynihan[16] concisely sums up the matter of treatment as follows: "The principles which should be observed, therefore, in all operations upon the pancreas for injury are these:

1. Bleeding must be carefully arrested by ligature en masse or by suture, preferably the latter.

2. If the tail of the gland is particularly crushed. a resection should be made.

3. If the duct of the Gland is exposed, care must be taken to see that suture does not penetrate the duct.

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[15] Schroeder Wm: Chicago.

[16] Moynihan. Abdominal Surgery.

4. Free drainage thru the anterior wall, thru a separate posterior opening or thru both must be provided.

In conclusion, just a word about pancreatic fistula. The work of Pawlow and Wolgemath[17] shows that strict diabetic diet had a marked influence in lessening the amount of pancreatic secretion and that it was correspondingly increased by an albuminous diet. Nourishment containing a large amount of fat also lessened secretion. Karwesi[18] found that, to promote healing of fistula, it was important to restrict the production of pancreatic secretion and to ward off metabolic disturbances from loss of the juice. Meat and fat proved the most useful in this respect, while carbohydrates of all kinds had to be avoided. Large doses of sodium bicarbonate during and between the meals, as recommended by Wolgemath, also checked the production of the juice.

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[17] Pawlow and Wolgemath: Quoting from Finney. Ann. of Surg. 1910.

[18] Karwesi: Abstract J. of A. M. A., April 27, 1907.

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2. Juan: Ibid. Male, 50. Kicked. Vertical rupture thru pancreas (right half). No operation. Death after eighteen hours.

3. Wagstaff: Lancet, Feb., 1895. Male. Fall against wagon wheel. Whole pancreas rushed. No operation. Death after four days.

4. Mikulicz: Stern. vierteljahrsschrift. f. gericht. Med. 1899. Male 37. Crushed between two railroad cars. Scar thru whole thickness of gland 2 cm. from end of tail. Operation after three weeks. Evacuation of hematoma. Death five months later from pneumonia and pleurisy.

5. Kolaczeck: Ibid. Male 37. Run over. Complete rupture thru left third of gland. No operation. Death after eight days.

6. Simmonds: Deutsch, Med. Wchnsch. 1902. Male 51. Run over. Complete tear in middle between head and tail. No operation. Death after four and one-half days.

7. V. Schneider: Ref. Ctrlbl. f. chir. 1904. Page 1470. Male 18. Struck by wagon pole. Transverse tear in head of pancreas. Tampon after 64 hours. Death five days after operation.

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9. Garr'e: Beitr. Z. klin. chir. Vol. 46. Male 24. Crushed between cars. Complete tear in middle. Suture of gland. Tampon after four and one-half hours. Cure.

10. Randall: Lancet, Feb., 1905. Man. Struck by wagon pole. Rupture two inches long in body of pancreas thru its whole thickness. Suture with silk. Tampon. Cure.

11. Walther: Cong. Assoc. Franc. Chirurg. 1905. Man. Run over. Tail of gland crushed, rupture of coronary artery of stomach. Tampon. Cure

12. Blecher: 35, Deutsch, Chir. Congress. 1906. Male 23. Kicked by horse. Transverse rupture in front of the vertebral column half thru thickness of gland. Tampon five days posttrauma. Cure.

13. Thoele: Deutsch Zeitschriff, f. chir. Vol. 84. Man. Kicked by horse. Body of pancreas crushed. Tampon two days posttrauma. Cure.

14. Karewski: Berl. klin. Wchnsch, 197. No. 7. Male 15. Struck by wagon pole. Oblique tear in body of pancreas. Tampon five and one-half hours posttrauma. Cure.

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22. Fowelin: Arch. f. klin. chir. 1911. Vol. 95. Female 24. Stab wound in epigastrium. Operation one and three-quarters hours posttrauma. Stab wound of pancreas bleeding stopped by suture. Tampon. Cure.

23. Becker: Ctrlbl. f. chir. 1905. No. 5, Female. Bullet wound of abdomen. Hole in gastrosplenic ligament, injury of tail of pancreas. Suture. Cure.

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26. Mayo-Robson: ibid. Male. Fall against edge of table bruising of pancreas with acute hemorrhagic pancreatitis. Operation. Drainage. Death.

27. Braun: Ctrlbl. f. chir. 1904. page 938. Boy. Kicked by horse. Operation fourteen days posttrauma. Tampon. Cure.

28. Gerschuni: Ref. Ctrlbl. f. chir. 1908. Page 1377. Female 43. Struck with a piece of wood. Operation twenty-fours hours posttrauma. Tear in pancreas. Tampon. Death nine days postoperation.

29. Gulecke: Muench, Med. Wchnsch, 1910. No. 2. Man 25. Contusion by heavily loaded wagon. Operation. Rupture in middle of pancreas. Also traumatic ulcer of the stomach. Death.

30. Gulecke: ibid. Man 28. Struck by bull. Operation. Fat necrosis. No visible injury of the pancreas. Tampon. Three months postoperation retroperitoneal abscess. Drainage. Cure.

31. Doberauer: Cit by Gulecke.
32. Noetzel: Cit. by Gulecke.
33. Heinecke: Arch. f. klin. chir. 1907. Vol. 84. Male. Operation ten days posttrauma. Cure.
34. Bicque: Rep. by Guinard. Boy 13. Thrown from bicycle. Extirpation of severed pieces of pancreas. Tampon. Cure.
35. Enderlen: Cit. by Dreufuss. Cure.
36. Hadra: Cit. by Piquand.
37. Michaux. Cit. by Piquand.
38. Foutynon: Cit. by Piquand.
39. Auvery: Cit. by Piquand.
40. Guilleman: Cit. by Piquand.
41. Fischer: Girl 6. Struck by automobile. Operation twenty-four hours postirauma. Cure.
42. Dobortvorski: Concealed isolated injury of pancreas. Klinurgian Mosk 1912. Art. not available.
43. Hagedorn: Amer. Jour. Med. Sc. 1913. Page 759. Abstract Zentralbl f. klin. chir. 1913 X I, 124. Wheel of heavy wagon passed over abdomen three days before taken to hospital. Operated on fourteen days after injury. Diffuse fat necrosis, abundant bloody serous fluid among distended coils of intestines. Two coils of intestines adherent to pancreas by brauny yellowish layer about the size of a half dollar. No wound of the pancreas palpated. Drainage. Recovery in eight weeks. Complication, abscess of parotid.
44. ibid as 43. Wheel of wagon passed over abdomen. Operated on second day. Omentum and mesentery showed fat necrosis. No gross lesion of pancreas found. No mention of drainage. Recovery sixteen days after operation.
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47. Glepke: Case of injury to pancreas followed by death. Treatment not known, ibid.
48. Turner: Boy 18. Wheel of cart passed over abdomen and chest. Operated on the thirteenth day. 3 pts. 6 oz. fluid removed. Drainage. Complicated by pleurisy with effusion. End results, recovery. Brit. Jour. Surg.
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50. Urban: Single subcutaneous wound of pancreas. Wein, Med. Wchnsch, 1915. Art. not available.
51. Dyde: Boy 13. Struck in epigastrium by horn of saddle when horse he was riding reared and fell backwards. Operated on 10th, 20th, and 26th day after injury. Drainage. Recovery. Col. Med., Denver, 1916.
52. Kingara: Boltjes: A case of subcutaneous wound of the pancreas. Treatment not available. Nedert Tydschr V Genesk. Amst. 1915.
53. Menzies, C. Stuart: A case of subcutaneous injury of pancreas. Woman 41. Thrown against steering wheel of auto. Operated on twenty-three hours after injury. Drainage. Recovery.
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Cases 20 to 41 inclusive are collected by Fischer.

I wish to thank Dr. W. L. Bishop who has assisted me materially in looking up the literature.

UNTOWARD SYMPTOMS FOLLOWING INTRAVENOUS INJECTION OF SALVARSAN.*

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The reactions that may follow the intravenous injection of salvarsan or neosalvarsan generally develop within a few minutes or a few hours following the injection. Shamburg and his followers believe that the reaction is due to some impurity in the salvarsan which they have designated as substancex. McKinnon has observed that salvarsan which was in acid solution precipitated out the salvarsan base in proportion to the concentration of the solution and rate of injection. These observations have been cofirmed by others and it is now, I believe, quite definitely conceded that salvarsan solution that is acid or not sufficiently alkaline will form a precipitation.

Danyse has recently shown that salvarsan solution is essentially colloidal and that upon its injection the salvarsan base is precipitated out by the constituents of the blood plasma and then precipitation depends to some extent upon the alkalinity of the solution and the peculiarities of the individual's blood plasma. If the solution is imperfectly alkalinized or if the serum of the patient is abnormal, rapid precipitation is followed by acute reactions. Berman has shown that even with a properly prepared solution precipitation occurs in the hypersensitive patients. He differs from Danyse, however, in believing that the process involves the protein of the serum rather than the salvarsan base. The question as to whether the entire phenomenon of the reaction due to salvarsan may be explained by the insufficient alkalinization of the solution or by the peculiarities of the patient's blood stream can certainly not be regarded as completely settled.

In some patients the reaction may manifest itself only once during the course of treatments, while in other patients they show a susceptibility to the salvarsan injections from the first. In these the reactions may either increase or diminish following the subsequent treatments. In connection with those of our patients who had but one reaction we had this experience. On one of our regular treatment days we opened a fresh box of salvarsan. Four patients received injections, three of whom fainted while returning to their respective wards and the last one fainting while on the table. We immediately discarded the remainder of the box. There were no physical properties discernible, but we did not make a chemical examination. It would seem that in all probabilities these reactions must have been caused by some toxic substances in the drug. We have had no other similar experience.

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*Read before Polk-Yamhill-Marion County Medical Society, Salem, Ore.

One hundred and seventy-four patients have received treatments by intravenous injections at the Oregon State Hospital since March, 1919. In each case we have kept an accurate case history and have had 81 reactions in 1,000 injections. In this series we have used neosalvarsan exclusively, thus eliminating any chances of the solution not being sufficiently alkaline. The larger percentage of these reactions manifested themselves by headaches, vomiting, diarrhea, dizziness or a feeling of malaise for a day or two. In the susceptible patients this reaction was more or less constant and the severity depended wholly on the amount of the drug they received.

We had one case that became jaundiced while under treatment. After missing one injection the treatment was continued and the jaundice rather promptly disappeared. This patient complained of drowsiness, dizziness, vomited a few times, no tenderness over abdomen and no physical signs pointing toward either the liver or gall-bladder. From the literature that I have been able to read concerning jaundice during the course of treatments of salvarsan, there seems to be considerable difference of opinion. Some hold that it is due to the syphilitic process being lit up by the salvarsan injection, while others think that it is caused by salvarsan itself.

Ten patients had convulsive seizures shortly after receiving the treatment, tho in most of these reactions did not occur until the third or fourth injection. Before this no unfavorable symptoms had been noted. Following these convulsions most of these patients failed quite rapidly and treatment was discontinued. Inasmuch as convulsions frequently occur during the course of general paresis, it is hard to say just what effect the salvarsan may have had.

We had one case that developed herpes zoster while under treatment but there did not seem to be any connection, as the patient said that during the last twelve years he had been troubled with this on three or four occasions.

We had four cases of dermatitis. Three of these had slight rash over the body and were confined to bed for two or three days. The other was a case of exfoliating dermatitis which we will present in detail:

N. K., female, age 24, weight 145, married, length of time since infection unknown but stated that after marriage four years ago she had not felt well; one year after marriage had rash and abortion; Wasserman 3 plus.

Aside from tasting and smelling the drug and slight headache she got along all right until the fourth injection. The next day she felt dizzy, vomited some, remained in bed for two days, had slight eruption on face and chest. After stopping treatment for two weeks the fifth injection was given July 15. That night she vomited considerably, had severe headache and chills. On the morning of the 16th, face was swollen, had rash over body which was of a reddish purple color. On the 17th, there was a general edema. Heart and lungs negative, pulse 94, had considerable blood in urine. On the 19th, rash had disappeared and desquamation set in, mostly coming off in a bran-like powder, tho there were some flakes as large as a quarter. Edema had subsided some.

The following three days she complained of general pain and soreness, desquamation very rapid, several large raw areas, lower extremities more edematous. Temperature 100; pulse 90; constipated, appetite good, sleep poor. Urine at first showed only blood, later brown and very offensive, slowly subsided, complained greatly of pain, desquamation practically complete on the 24th. Had slight sore throat, pulse and temperature normal. Gradually progressed until the 30th, when she was again out of bed.

In regard to the prevention of reactions which may follow the intravenous injection of salvarsan, certain precautions should be used. In giving salvarsan the dilution should be 1 mg. to 15 cc. of distilled water; neosalvarsan 1 mg. to 5 cc. to 7 cc. of distilled water. It is not necessary for the water to be boiled, if it is freshly distilled. The solution should be given at a temperature of 104° and plenty of time should be allowed for the injection, at least one minute. Be sure that the solution is sufficiently alkaline and thus avoid any chance of a precipitation forming, while the injection is being given. Occasionally one finds ampules of neosalvarsan which do not show any cracks on being placed in alcohol, but when out in solution the drug will be found to have become partly oxidized. This is easily discernible by the brown color and rather offensive odor. These should be discarded as they are highly toxic. Precaution should be taken to be sure that the needle is in the vein before the injection starts.

It is better to start with a small initial dose and gradually work up to the maximum. In this way one has a chance to study the patient and to see it the individual shows any susceptibility. From different text books one is led to believe that the dosage should be figured by the weight of the patient. It has not been our experience that this is a good rule to follow, as I think the relatively large dose that the patient will stand without showing any unfavorable symptoms can only be found by gradually increasing the dosage. It has been proven clinically that, when a patient shows unfavorable symptoms shortly after the injection is started, by discontinuing the treatment for an hour and then continuing with the dose all of the unfavorable symptoms which developed at first, such as dyspnea, dizziness, injection of the conjunctiva and all will have disappeared and the rest of the injection can be given with safety.

Dr. Stokes, of the Mayo Clinic, who has given several thousand injections of both salvarsan and neosalvarsan, feels that the greater percentage of the unfavorable reactions following the injection of these solutions is due to anaphylaxis. Working on this theory, he gave thirty minutes before time for the injection 1-50 gr. of atropine hypodermically and was well satisfied with the result, tho from reading one of his case histories one will note that it had no preventive action on the manifestations of a dermatitis. At this hospital we have tried this procedure in a few cases and feel that in the use of atropine we have a drug which will do a great deal toward preventing reactions.

Epinephrin has been recommended and used as a preventive but, as epinephrin itself is capable of producing reactions which are as severe as salvarsan, it does not seem to be a good drug to use.

In closing, I would like to say a few words regarding the treatment of general paresis by salvarsan. On a whole our experience has been very discouraging. Some few of these cases showed a temporary improvement but this was of short duration. The larger percentage were unchanged and a small percentage made worse. Generally speaking, it seemed to shorten the lives of the patients and in a few cases quite markedly.

A SIMPLIFIED TECHNIC FOR ADMINISTERING SALVARSANIZED SERUM.*

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The object of this paper is not to depreciate the more elaborate methods of administering salvarsanized serum. I do not wish to criticise the Swift-Ellis method nor any of its worthy standard modifications. The great expense attached to the above method is augmented in most cases by a trip to a large city, where numerous hospital and laboratory charges constantly drain the patient's resources. I had these reasons in mind when I began to perfect my simplified technic which I believe can be used with safety by a general practitioner who has not the facilities of a large laboratory.

The instruments required are: (1) A large Luer syringe (I use a very large one of 150 cc. capacity), (2) an intravenous needle, (3) mixing bowl, (4) large Wright pipette, (5) small funnel, (6) short wide mouth bottle, (7) gravity intraspinal set.

The salvarsan or neosalvarsan is mixed in the white porcelain dish. If salvarsan is to be administered I use 100 to 150 cc. of fresh double distilled water, distilled thru an all glass still. If neosalvarsan is desired, I use a smaller amount of water, usually 40 to 75 cc. Mixing is done with the syringe. A little gauze and cotton is placed in the funnel and the solution filtered and drawn back into the syringe, then injected into the vein, care being taken to expel all air and also to allow blood to flow back in the syringe before the injection is started. The needle may remain inserted in the vein for five minutes, if the patient is nervous and fears being pierced with the needle, but usually I withdraw it and in five minutes insert it in another vein, using the same syringe and needle as was used for the injection. Now draw back in the syringe double the amount of blood as there is serum desired. The syringe is now placed on ice until clotting and separation occurs. Then the clear serum may be removed with the Wright pipette and placed in the bottle. This is now inactivated by placing in water at 56° for one-half hour.

This simple procedure obviates the use of extra blood tubes and flasks, and also removes the necessity of a high speed centrifuge. As soon as the serum is inactivated it may be injected or it may be kept cool and injected the next day.

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*Read before the Twenty-sixth Annual Meeting of Utah State Medical Association, Ogden, Utah, Sept. 7-8, 1920.

If the operator desires to fortify the serum, it may be done by leaving the required amount of salvarsan in the syringe while doing the intravenous injection. This is then mixed as the blood is drawn back into the syringe. I have fortified and injected the serum in this way as high as eight times to one patient, always with good results.

I am aware that this method of using the syringe is condemned by the U. S. Public Health Service and many others. G. W. McCoy, Director of the Hygienic Laboratory, emphasizes this point in regard to asphenamine, with which at least 90 cc. of water must be used.

I have used both the gravity and the syringe methods, and prefer the latter for office work. I believe that if care is taken it is a very satisfactory procedure. In the office I have used this method repeatedly since the reporting of some cases poisoned by salvarsan in January *J. A. M. A.* of 1917, at which time it was claimed by the manufacturers of the drug that the toxic reactions were caused by imperfect technic.

It is noticeable how persistently some companies boosted the product to the physician, and yet refused to accept his clinical evidence that this particular brand or batch of salvarsan was poisonous. One company has even had their attorney write threatening letters to physicians who dared to publish reports of poisoning. I refer to the article in *J. A. M. A.* June 1, 1918, p. 1628. I have used both the American and Canadian products but have had less toxic and nitroid reactions from the French than from any other preparation.

Six months following the report I began using salvarsan and neosalvarsan billion, using every refinement in technic possible, including administration of 1-50 grain of atropine sulphate before injection and immediate hypodermic of andrenalin chloride, if any suspicious symptoms should become manifest. I have injected 900 doses of the billion with three toxic reactions and 360 injections of the Sanar brand with five cases of chills. None of these anaphylactic phenomona were severe and none incapacitated the patient the following day. These reactions do not include theose following the spinal injection, which has been about 50 per cent. in my work.

IMPORTANCE OF THE SURGICAL REMOVAL OF TEETH, OR THE WORK OF THE MINOR ORAL SURGEON.*

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In the Journal of the American Medical Association of June 12, 1920, Dr. W. S. Thayer, of Johns Hopkins University, makes the following statement: "I know of dentists of the highest reputation in their communities who extract a tooth, curet well the socket and then dismiss the patient; and I have on more than one occasion met such a patient several years later and found that he had suppurating cavities, the necrosis still continuing, well closed in, simply because the cavity had not been properly treated."

With both the medical and dental professions recognizing Dr. Thayer as an authority, it behooves every professional man to follow up this statement until he has proved or disproved it to his own personal satisfaction. Many will champion it; a few may challenge it; and some may accept it with indifference. In the latter case, the acceptance with indifference is probably because the individual has given but little attention to the subject, and not because of any preconceived idea that may be held.

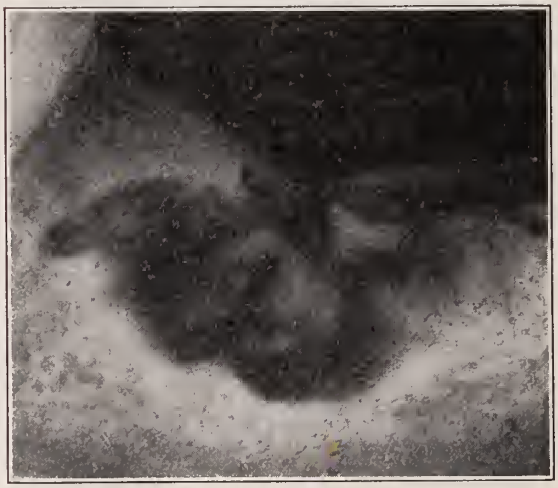

Fig. 1.

It is the purpose of this article to present the affirmative side of the argument, together with the reasons therefor. These are based upon the personal experiences of the writer, and have been proved to his entire satisfaction many times. Each of the following cuts tells its own story. As each

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*Read before Portland City and County Medical Society, Portland, Ore., Dec. 1, 1920

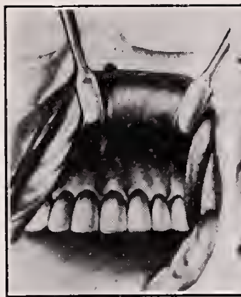

Fig. 2.

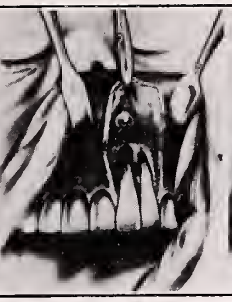

Fig. 3.

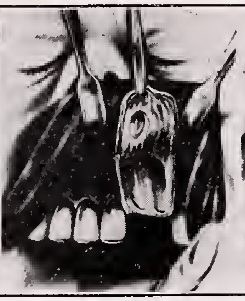

Fig. 4.

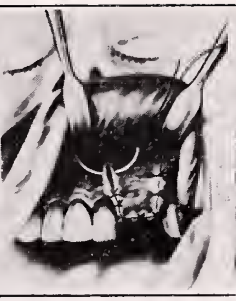

Fig. 5.

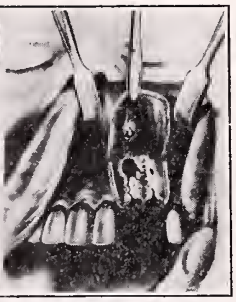

Fig. 6.

is supplemented by a brief explanatory paragraph it is hoped that every medical man who reads this article will see at a glance, just what the minor oral surgeon is doing.

Fig. 1 shows a condition resulting from treatment such as Dr. Thayer mentions. It was made from an x-ray which was taken six years after extraction. This is the history of the case:

Several years ago a certain tooth was extracted by a reputable exodontist and the case was dismissed. Three years later considerable inflammation and pus was found in this area. The exodontist, under nitrous oxide and oxygen, curetted it in the usual way, giving temporary relief. In a short time the old trouble returned and pus burrowed its way thru the cheek. A physician was then called upon and he succeeded in healing the external opening. Sometime later the patient, whose general health had been by this time greatly impaired, began suffering again from the same trouble. This time he called at the office of the minor oral surgeon. Upon examination it was found that the cheek was highly inflamed and the large amount of pus which was present was just about to break thru the cheek again. It was at this time that this x-ray was taken. The oral surgeon gave temporary relief (under N_2O and O) by making a scarless incision parallel with the lines of the face. As soon as all inflammation had subsided, novocain nerve block anesthesia was used and the entire amount of sequestered bone was removed in the manner as shown by the illustrated surgical technic to follow. All areas were then freshened and the cavity was packed lightly with gauze. As a result, there was an absolute healing both inside and out and the general health of the patient soon improved.

Fig. 2 shows the field of operation after incisions have been made, but before the mucoperiosteum has been raised.

In fig 3 the mucoperiosteum has been raised and the alveolar plate removed. Note the clear field of operation which, as we all know, is the first requisite of good surgery. Note also the pathology present in the bony tissue, as well as the absorption of the apices of the roots. In this case it is with comparative ease that the rough edges may be smoothed and all the spiculae of bone removed without leaving any question of a favorable prognosis. Then, too, if the field of operation is kept sterile by the use of sterile instruments, rubber gloves, and in fact all precautions pertaining to asepsis, there will not be the remotest possibility of any thing but a satisfactory result.

Fig. 4 shows the area after the surgical removal of the teeth and the granuloma which was attached to the periosteum.

Fig. 5 shows the completion of the operation with the tissues sutured. These will unite by first intention.

Let us now consider for a moment what takes place under the ordinary method of extracting and curetting.

In fig. 6 (from paper by Dr. Shearer, *Nat. Dent. Jour.*, July, 1920) there is shown the mucoperiosteum that has been raised in order that perfect vision be gained. Note the granuloma attached to the mucoperiosteum after having penetrated the alveolar plate. In all such cases the granuloma is so firmly attached to the periosteum that it requires a very sharp knife to remove the same. This and this *only* constitutes surgical removal. If, on the other hand, the curretting is done thru the socket, the operation must be classed as unsurgical. This is true because the field of operation cannot be seen, resulting in a possibility that all of the infection may not be removed and also that small spiculae of bone may be left to cause trouble later. It may be noted that the condition of this alveolar plate is the result of the antedated twisting, yanking, prying method of extraction which has been condemned by such institutions as the Mayo Clinic, Johns Hopkins University, Columbia University and others.

It is gratifying to see that physicians, surgeons and dentists everywhere are becoming convinced that cooperation of the professions, and *cooperation only* will bring relief to innumerable patients. They are accepting the theory that the oral cavity influences and is being influenced by the other parts of the body. They are daily coming to a realization of the fact that the work of the one must dovetail into the work of the other.

The physician is now proving to his own and his patients' satisfaction that when the seat of infection is in the oral cavity, his work is not finished upon sending that patient to a dentist; he is becoming more strongly convinced every day that it is his duty to follow up the work of the dentist and carefully check up on causes and results.

The dentist is also realizing that cooperation is of the utmost value to him. He knows that his field of operation is in the oral cavity only, and that infection so located may be complicated by infection in other parts of the body. In cases of this kind he also shows that the physician is his best friend.

In most cases, however, where strict cooperation and careful follow-up work is necessary, the treatment borders on surgery. This is such a big problem in itself that the practicing profession must needs give special attention to this phase of the work in order that proper results be obtained. In fact, the field is so great that the vacancy must be supplied by a new specialist, the minor oral surgeon.

A QUICK AND SAFE METHOD OF CHOOSING DONORS FOR BLOOD TRANSFUSIONS.

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PORTLAND, ORE.
Pathologist St. Vincent's Hospital.

At the present time blood transfusions are being done more frequently than previously and it is very essential that a quick and accurate method be used in the selection of donors. A few years ago blood was transfused only for anemias and severe hemorrhages. However, at the present time it is not only used for replacing red cells, but the transfer of antibodies and immune substances which are contained in the donor's serum, and for supplying nutrition to the recipient in some cases.

BLOOD GROUPS.

From the study of isoagglutinins the grouping of individuals was discovered by two different observers about the same time, who worked independently of each other. Unfortunately, for this reason, we have two different classifications in the literature. Jansky,[1] in 1907, published his classification in which he regards group I individuals as being universal donors and group IV individuals as universal recipients. In 1910 Moss[2] published his classification in which he specified group IV individuals as being unversal donors and group I individuals as being the universal recipients. The two methods differ in that groups I and IV are interchanged and groups II and III are interchanged.

Some use one classification, while others use the other and, when donors are recommended to other doctors, there may be misinterpretation due to there being two different classifications. Karsner[3] has given a very complete discussion of Jansky's classification. Recently the American Association of Immunologists, the Society of American Bacteriologists and the Association of Pathologists and Bacteriologists have recommended the adoption of the Jansky clasification.[4] In this classification group I individuals' serum agglutinates the corpuscles from groups II, III and IV individuals. Group II serum agglutinates the corpuscles from groups III and IV. Group III serum agglutinates the corpuscles from groups II and IV. Group IV serum has no agglutinating power for corpuscles.

Jansky's classification is tabulated in table 1, showing the relations of the cells of one group to the serums of others and vice versa. 43 per cent. of all individuals belong to group I, 7 per cent. to group II, 40 per cent. to group III and 10 per cent. to group IV.

TABLE 1.

Serums of groups	Cells of groups			
	I	II	III	IV
I	*	‡	‡	‡
II	*	*	‡	‡
III	*	‡	*	‡
IV	*	*	*	*

(‡) agglutination. (*) no agglutination.

Fig. 1 shows a very satisfactory diagram for determining the group, when serums II and III are used. The agglutination of the cells by serums of other groups takes place as indicated by the pointing of the arrows.

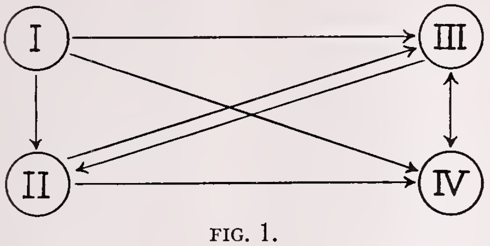

FIG. 1.

For practical laboratory grouping all that is necessary are the serums known to belong to groups II and III, and a suspension of the individuals corpuscles to be grouped. For example, take the corpuscles from a patient X. To determine the group to which X belongs is done as follows: Mix the X corpuscles with the same amount of group II and III serums. The group may then be determined by noting whether or not there is agglutination with one or both of the serums and consulting table 2 or fig. 1.

TABLE 2.

X cells and II serum, no agglutination
X cells and III serum, no agglutination
X belongs to group I.

X cells and II serum, no agglutination
X cells and III serum, agglutation
X belongs to group II.

X cells and II serum, agglutination
X cells and III serum, no agglutination
X belongs to group III.

X cells and II serum, agglutination
X cells and III serum, agglutation
X belongs to group IV.

METHOD IN DETAIL.

To one half cc. of citrate solution (1 per cent sodium citrate in 0.9 per cent. sodium chloride solution) in a small test tube, add one medium sized drop of the individual's blood to be grouped. Blood is secured by a needle prick on the finger or ear. Mix well by shaking moderately. Prepare two cover glasses by cleaning and passing thru a flame. On each cover glass place a loop full of the cell suspension. Then to one add a loop full of group II serum and to the other add a loop full of group III serum. Mix the solutions well on each cover glass; then make a hanging drop preparation of each by inverting over concave slides. Lable each. Place in an incubator at 37° for ten minutes. Observe under the microscope at periods of fifteen minutes and one-half hour. By noting whether agglutination does or does not take place the group may be determined. If an incubator is not at hand, the observation may be carried out at room temperature. Agglutination usually takes place within five minutes, but to be absolutely sure of the results when agglutination does not occur it will be well to observe at periods for one-half hour.

This method has been described by many writers previously but not in detail as described here. It is perfectly reliable if done with care. It does not necessitate the securing of a large quantity of blood from the individual and the delay in centrifuging to obtain serum. Serums II and III should be kept comparatively fresh, i. e., not more than one or two months old, and should be kept in an ice chest. Serums should be inactivated shortly after being separated from the cells in order to destroy the complement and to kill any microorganisms that may have contaminated them. By heating serums for one hour they become inactive and then, if preserved in an ice chest, they will keep for several months. Isoagglutinins are resistant to a temperature of 56° but may be altered at a temperature over 60°.

RELATIONS OF GROUPS.

Where donors are used that belong to the same group as the recipient no reaction should occur. If a reaction does occur, there is usually some fault with the citrate solution or with the method used. When inconvenient to find a member of the same group, group I may be used for all groups. Group II may be used for groups II and IV and in the same way group III may be used for groups III and IV. However, group IV can only be used for transfusing group IV patients. The reason for this is that the concentrated serum of the recipient comes in close contact with the donor's cells and, if there are agglutinins present in the serum for the cells of the donor, agglutination will take place within the recipient's veins. On the other hand, if the donor's serum contains the agglutinins, the serum will be so diluted by the recipient's blood that no agglutination will take place.

STRENGTH OF AGGLUTININS IN SERUMS.

By careful observations under the same conditions different serums will be found to have different agglutinating powers.[5] Some agglutinate corpuscles from other groups very rapidly and completely, forming large clumps. But serums from other individuals may only agglutinate corpuscles from other groups very slowly and not form complete agglutinations. By careful study one could grade each serum according to its agglutinating power, as one plus, two plus, three plus and four plus. In other words,there is a definite agglutination titer to every serum except group IV which contains no agglutinins for corpuscles.

In direct matching of the recipient's serum and the donor's cells the agglutination may take place so slowly and so few cells become clumped that the two patients may be considered to be in the same group, but in reality are in different groups. Certain conditions may alternate the agglutinins in an individual's serum but the cells remain constant after the tenth year of life. The recipient is never in a normal state of health, so there is the liability of the agglutinins being so weakened by alteration that in using such a serum to choose a donor, a mistake may easily be made. On the other hand, cells can be tested with strong known serums without the danger of a wrong reading. If the direct method is used, there is not only the chance for error but more steps are required in making the test. Only groups II and III serums should be used which have a strong agglutinating power.

GENERAL CONDITION OF THE DONOR.

It is necessary to ascertain the general physical condition of the donor. Only an individual in good health and one with a normal blood picture should be used. Previously it was thought necessary to do a Wassermann test on the donor. Recently Eberson and Engman[6] have pointed out that spirochaeta pallida are not found in the blood of patients with latent syphilis. Care must be taken not to use a donor with late primary or secondary syphilis. A donor should not be used who has a latent or active malarial infection.

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DISLOCATION OF THE CARPAL SEMILUNAR BONE.

CHARLES R. MCCLURE, M. D.
PORTLAND, ORE.

Dislocations of the wrist, that is of the carpal bones as a whole at their articulation with the radius, are of rather rare occurrence. That they do occur is confirmed by the experience of most surgeons in having seen one or more of such cases.

Isolated dislocations of a single carpal bone occur with great rarity. A glance thru text-books on surgery and on fractures and dislocations discloses very little on the subject, it either receiving no mention or else but a few lines, stating its rare occurrence and with absolutely nothing concerning their types, signs or treatment. I quote, for instance, from Davis in full, as follows: "the carpal bones are so firmly held in place by their ligaments that they are rarely luxated. Dislocations of the scaphoid and semilunar, however, are sometimes encountered." A further review of the literature reveals the report of but few cases.

Several months ago Kleinberg reported two cases, one of the scaphoid and semilunar, the other of the semilunar alone. His remarks on the subject confirm my own experience as to the rarity of the condition and as to the fact that many of our orthopedic colleagues have never seen a case, while others may have seen but one or two cases in their entire experience. Kleinberg's two cases were of long standing, obtaining a good functional result in one case by operative removal of the displaced bones and in the other by conservative treatment alone, altho not reducing the dislocation.

Cases of such rare occurence should be reported and the report of such a case is my apology for this brief paper. My case differs from Kleinberg's in that it was seen early and also in that a perfect reduction was obtained as evidenced by the roentgenogram and the perfect functional result. When the case presented and a diagnosis had been made, a hurried search of the literature for light on methods of reduction elicited no help. Appreciating, also, the difficulty of manipulating a badly rotated odd-shaped bone back into its pocket by manipulation alone and the probability that it would have to be excised, it was with great satisfaction that the roentgenogram confirmed its exact replacement.

History. J. M., contractor, aged 53, hurt his right wrist while cranking his Ford automobile, the crank back-kicking and striking his wrist. It

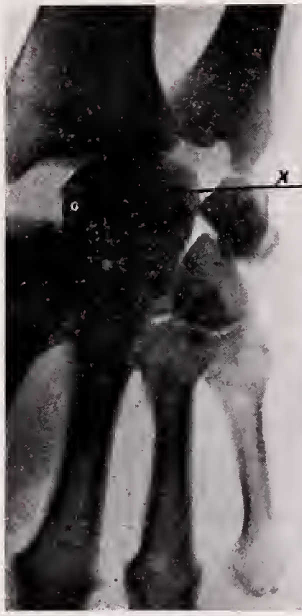

Fig. 1

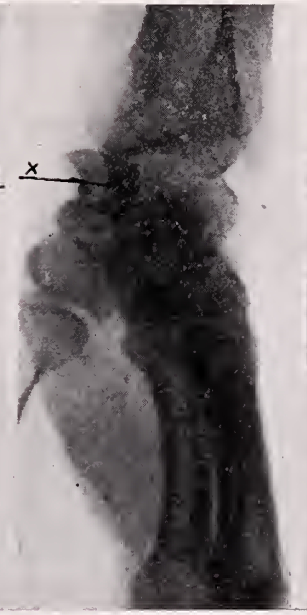

Fig. 2.

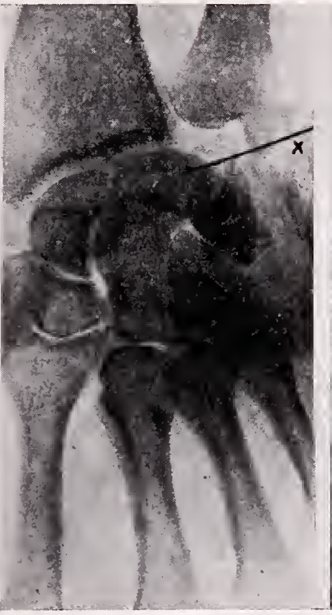

Fig. 3.

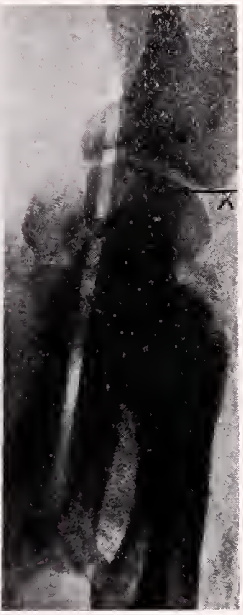

Fig. 4.

Fig. 1. Dislocation of semilunar of right wrist. Anteroposterior view. Also note slight lateral displacement of entire carpus.
Fig. 2. Dislocation of semilunar of right wrist. Lateral view.
Fig. 3. Anteroposterior view of right wrist after replacement of dislocated semilunar bone.
Fig. 4. Lateral view of right wrist after replacement of dislocated semilunar bone.

evidently struck him on the back of the wrist, as most of the swelling was on the anterior surface. Dr. A. W. Moore was called and had an x-ray picture made. The patient and the roentgenogram were then brought to my office, so that I saw him a few hours following the time of the injury. Inspection showed some discoloration of the skin about the wrist, especially on the back, and more or less swelling of the entire region. The swelling was more marked over the front of the wrist, but was not extreme. There was pain, but it was not acute. Tenderness was marked both anteriorly and posteriorly along the proximal carpus. The fingers were held partially flexed and, while mobility was lessened, they could be passively extended.

The roentegnograms were then carefully studied, both anteroposterior and lateral views being presented. The roentgenograms, made by Walker and Vinson, as seen in figs. 1 and 2, show very clearly and beautifully the dislocation of the semilunar bone. There is also shown a slight displacement of the entire carpus laterally. The semilunar is shown displaced forward and rotated more than 45 degrees. It shows in the picture as a three-quarter moon, distinctly separated from and in front of the os magnum. Its superior surface points directly backward instead of directly upward, the inferior surface pointing forward instead of downward. The rotation is twice as great in my case as in the one reported by Kleinberg.

Treatment and results. Under general anesthesia and with the assistance of Dr. Moore, the displaced bone and wrist were manipulated carefully, an attempt being made to guide the misplaced bone back into its bed. When inspection and palpation appeared as good as possible a light plaster-of-Paris cast was applied and the patient sent home. He returned the next day for another x-ray examination, the roentgenograms happily disclosing a perfect reduction, as seen in figs. 3 and 4.

His subsequent convalescense was uneventful, a perfect functional result being obtained.

Selling Building.

Rectal Injection of Massive Doses of Neo-Arsphenamin. Believing that perhaps the clinical failures by the intrarectal method might be due to the fact that the doses were too small, H. G. Mehrtens, San Francisco (Journal A. M. A., Feb. 26, 1921), gradually increased the dose by rectum until 4 gm. of neo-arsphenamin was given. Intravenous injections were also given. The absorption and distribution were checked by determination of arsenic in the blood, urine and spinal fluid after each method of administration. For the rectal injection the patients were given a brisk purge on the day preceding the treatment. Two hours before the treatment they were given a colonic flush until the washings returned clear. Simultaneously with the injection, tincture of opium or paregoric was given by mouth, or, in some cases, morphin by hypodermic injection. The arsphenamin or neo-arsphenamin was dissolved and neutralized just as for intravenous injection. The volume for each dose was 100 c. c. This was retained twenty-four hours, if possible. Frequent examinations of the blood revealed that the arsenic is absorbed into the blood after such injections, and larger quantities are eliminated in the urine than after ordinary intravenous injections of arsphenamin.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah.
Devoted to the Interests of the Medical Profession of the Pacific Northwest
Editorial Office, 1011-12 Cobb Building, Seattle, Wash.
MARCH, 1921

EDITORIAL

THE OREGON TRISTATE MEETING.

The year 1921 again brings around that cycle when the State Medical Associations of Washington, Idaho and Oregon unite in a common meeting to further cement the feeling of fraternity which exists between the medical men of the three states. It is planned to hold the meeting in the latter part of June, so as not to conflict with the itinerary of those who expect to attend the meetings of the American Medical Association and the American Surgical Association. Three years ago the joint meeting of the three state associations was held in Seattle. This year it will be held in Portland by regular rotation.

The plans are being made to provide a very good program. Five Eastern men of note have already given definite promise to present scientific papers at the meeting. It is also expected that the American Medical Association will have a representative to present the subject of medical organization. The hospital situation will be thoroly gone over by Dr. Musgrave, of the League for the Conservation of Public Health. In reference to the social side of the meeting, the Oregon physicians are making definite plans for highway automobile trips up and down the Columbia river. There will be other features, the aim of which will be to make this meeting especially interesting and attractive to the wives of the doctors who will attend. It is hoped that every doctor from Washington, Idaho and Oregon, who can attend, will make every effort to do so, and that he will bring his family with him. More details of the meeting and data as to program will appear in subsequent issues.

A SPINE-ADJUSTED LEGISLATURE.

The controversy between the chiropractors and the sanipractors, rivals in the field of drugless healing, which has been in progress for the last fifty days before the Washington legislature, has developed something new in lobbying. Instead of using persuasive arguments and convincing logic the drugless lobbyists have adjusted the spines of most of the legislators. Boosters for one or the other schools of healing have steered legislators to rooms at the leading hotel, where deft spine mechanics have relieved so-called dislocations, subluxations and nerve impingements which were hitherto undetected and unsuspected by the "patients". The attractive feature of the drugless treatments was that they were free. It did not matter that many who succumbed to the sales talks of the boosters were in perfect health before their spines were surveyed and straightened; they went amiably to the adjusting rooms under the belief that it might do some good anyway. Others, prompted by the talks of the chiropractic and sanipractic runners, discovered aches and pains of mysterious origin which were soothed away by the vigorous manipulation of their vertebrae. Social parties, where in ordinary times there would be provided song and the usual forms of entertainment, were changed into drugless clinics. One by one the guests would be taken into adjoining rooms and "adjusted". Altogether the 1921 session of the Washington legislature is the most thoroly "adjusted" legislative body in the world. It is a form of lobbying most difficult to compete with and would be excessively funny, were it not for the fact that the practice has much to do with the shaping of our laws. The closing of the legislative session may well be looked forward to as "The End of a Perfect Daze".

MEDICAL LEGISLATION IN OREGON.

The Oregon legislature adjourned last month without passing any legislation hostile to the medical profession, altho several bills of interest were introduced and considered. These were all Senate bills and were sponsored by a group of legislators from Multonomah county. The bill creating a board of examiners for chiropodists passed the senate. It was so thoroughly amended by the House Commitee on Medicine and Pharmacy that all its objectionable features were removed. A Senate bill creating a board of examiners for drugless healers, granting them power to do minor surgery and obstetrics, was reported favorably by the Committee on Medicine, Dentistry and Pharmacy, a majority of which fathered all bills of this character. While it passed the senate by a small majority, it was referred to the House Committee on Health and Public Morals, after its supporters were advised of the adverse report from the Committee on Medicine, where the former committee rendered a four to one vote against it and the House defeated it by a decided majority. When the senate bill "amending the present chiropractic law" was introduced which would grant these drugless healers all the rights held by practicing physicians, the same Multonomah county clique reported it favorably. It passed the Senate by a bare majority, was reconsidered and sent back to the committee, and on its second consideration in the Senate was defeated. The same measure which was defeated in the November election was introduced in the senate, "requiring that inoculation or vaccination should not be necessary for admission to schools or educational institutions." This was killed in committee. The final attempt to get the goat of the doctors, and largely backed by the christian scientists, provided "that all prescriptions should be written in English; they should be written in triplicate and should contain the patient's name and address, a concise statement of the disease and the exact symptoms for which it was given." This interesting tho absurd proposition was beaten in the Senate commitee.

THE COMMUNITY CHEST.

In every community there is a certain number who, thru misfortune or illness, must of necessity be supported wholly or in part by the more fortunte members of society. The various philanthropic and charitable organizations that exist to aid and support these unfortunates must obtain the funds for carrying out their purpose thru the liberality of the people of the community. Every citizen with the generous impulses of the normal human being should be willing to do his part in carrying out these beneficent purposes. Yet at times the generous minded citizens of the community feel themselves very much burdened and annoyed by the continuous and repeated solicitations for contributions. Physicians are considered among those most available to help support these various projects. As a class their impulses are generous and they are willing to do their share in maintaining the various institutions for charitable relief. Nevertheless with them as with other citizens of any city, the round of drives and solicitating for these objects becomes a burden difficult to endure with patience.

To relieve this situation the plan is being presented in the different cities to establish a community chest. This in brief is to launch one widespread and intensive compaign among all the citizens of the community, to persuade each one to make one contribution per year, as liberal as his circumstances will permit. The funds thus obtained will comprise this community chest. Then a committee suitably selected will be charged with the task of distributing these funds among the various organizations that customarily launch their annual drives, each one receiving what is considered its due proportion from the fund. Altho it might seem that certain institutions would fall far below their sums ordinarily collected, it is stated that, where this plan has been tried, the total contributions have exceeded those hitherto collected by individual organizations. By this widespread solicitation people have responded who have formerly been passed or have been indifferent to isolated calls upon their generosity. It seems as if the medical profession ought to unite in endorsing and supporting such a plan to aid the needy, and at the same time relieve themselves from the annoyance and burden of the established plan of solicitation.

SAVE YOUR EYESIGHT CAMPAIGN.

The Eyesight Conservation Club, of America, with headquarters in New York City, is about to launch a widespread campaign to acquaint the people with the importance of preserving and caring for eyesight. The object is to arouse public interest to an appreciation of eye hygiene and the dissemination of knowledge regarding the prevention of visual errors and the necessity of protection against special hazzards and eye strain. Information will be circulated regarding the proper lighting of homes, schools, factories and public buildings. An effort will be made to require universal eye examinations of industrial workers and school children.. Data will be circulated pertaining to the care of the eyes. The aid of the state and federal governments will be enlisted, as well as departments of health and education. The only purpose of this enterprise will be to further public welfare and increase the efficiency, comfort and happiness of humanity. The financing of the effort is somewhat unusual. The optical industry and trade were approached on the principle that such a movement should be supported by the industry which will ultimately be benefitted. Sufficient funds were subscribed to insure success to the undertaking. At the same time it is asserted that the activities of the organization will at all times be conducted free from the influence of commercial interests. It would seem that an enterprise of this kind ought to enlist the interest of the whole medical profession.

NEW ADVERTISEMENTS.

Attention of our readers is called to the new advertisements appearing in this issue. The Morneau Sanitary Thermometer Case (page 12) assures a sterile thermometer always available. Quartzlight (page 5), from a quartz mercury vapor lamp, presents ultra-violet emanations, suitable for therapeutic use. National Medico-Specialties Laboratories (page 3), offer tested stains and regents. Dr. Kern announces his sanitarium for nervous and mental diseases (page 12).

MEDICAL NOTES

OREGON.

New Health Officer. Dr. Frederick D. Striker, of Grant's Pass, has been elected health officer by the State Board of Health, with headquarters at Portland. He was health officer for Josephine County for twelve years. The past year and a half he has devoted to the study of tuberculosis work in Tucson, Ariz. He was elected state health officer at the annual meeting of the Board of Health, held in Salem last month.

The League for the Conservation of Public Health at Work. Dr. W. E. Musgrave, of San Francisco, has recently assisted in organizing the league in Oregon. He has, among other things, taken part in the attempts to improve the conditions of hospitals. Last month he gave an address explaining the positions of the league and showing how it must deal with social and political matters in its aim to better the general conditions of the public.

New Licentiates. At the January meeting at Portland of the Board of Medical Examiners, the following twenty-seven applicants were successful in obtaining license to practice: P. F. Lacey, Amos Avery, J. M. Hanchey, G. W. Millett, B. De Rosa, C. L. Taylor, W. J. Crandall, G. E. Holt, Evan Ardiel, Gladys C. Anderson, L. C. Marshall, C. H. Beaumont, J. L. Scripture, S. H. Wise, T. W. Johnston, J T. McKay, Joseph McConnell, W. P. Richardson, E. D. Geer.

New Physicians and Surgeon's Building. Plans are progressing for the erection of a physicians and surgeons building at Salmon and Fifth Streets, Portland. The structure with its site will cost about $850,000. It will be a cooperative proposition, each physician owning his own suite of offices.

New Hospital Proposed. It is announced that plans have been made for the immediate erection of the Theodore B. Wilcox Memorial Hospital at 22nd and Marshall Streets, Portland. It will represent an investment of $100,000 for a maternity hospital, and $25,000 additional for furnishing and equipment.

Dr. Mallet, of Portland, has moved to Klamath Falls, where he will engage in practice.

Dr. H. C. Veirick has recently moved to Astoria, where he will locate for practice.

Dr. Albert Lessing, of Bend, has moved to Leavenworth, Wash., where he will be established for practice.

WASHINGTON.

Hospital Enlarged. An addition has been completed to the Children's Orthopedic Hospital, of Seattle, at a cost of $70,000. An additional story has been constructed and the whole hospital renovated, making it a four story, fire-proof structure. The work of the hospital was continued during the process of reconstruction.

Hospital Sold. The Anacortes Hospital, which has been operated under the direction of the Anacortes Physicians and Surgeons, Inc., has been sold to Mrs. O. A. Craig, of Bellingham. She has been a hospital superintendent in the East for a number of years and will conduct the management of this institution.

New Hospital Opened. The Winifred Hospital, at Yakima, was opened last month. It is a reconstructed private residence and open to the profession for the treatment of medical and surgical cases.

Change of Name. The Ballard Maternity Hospital will be known hereafter as the Ballard Private Hospital. It is in charge of two graduate nurses.

School Clinic Definitely Adjusted. By a conference between the school and health authorities, an amended bill was prepared and presented to the legislature which was satisfactory to all interests concerned. According to it, school directors of first class districts are authorized to maintain supervisors of health to look after the physical conditions of children. Specific authority is granted to maintain dental and medical clinics. No child shall be treated or vaccinated without the consent of the parents, and treatment shall be given only to those children whose parents are unable to pay for it.

Ambulance Donated. The hospital at Shelton, built principally for the loggers of the district, has had a gift of an ambulance from Mrs. Agnes H. Anderson who is interested in the logging industry. This is a modern up-to-date ambulance.

Drugless Healers Act Modified. Last month a bill passed the Senate by a large majority which reduces the number of drugless healers, cutting out several hundred of them whose licenses were of doubtful validity. Such cults as mechanotherapists, physcultopaths, food scientists and suggestive therapists are still good enough to practice, but the sanipractors got it in the neck. They were not well enough qualified to be considered drugless healers. They have raised their standards for license. Hereafter the applicant must be a high school graduate or its equivalent, and must present a diploma from a college with a three year course of study. Drugless healers are forbidden to use the title of Doctor of Medicine or Doctor of Osteopathy.

Preparing for Public Health Work. Dr. Y. C. Blalock, of Walla Walla, is at Johns Hopkins Hospital, taking special studies in public health work. On his return he will be appointed full time county health officer. During his absence the office is being filled by Dr. E. A. Montague.

New Post for Health Officer. Dr. T. T. Tuttle, recently state health officer for Washington, has been appointed officer in charge of the hospital for the rehabilitation of disabled soldiers, to be opened at Fort William Henry Harrison.

The North Pacific Pedriatic Society held a meeting at Spokane Jan. 29. The attendance included pediatricians from all the states of the Northwest The guest of the evening was Dr. H. L. Fleischner, of San Francisco. Interesting papers were read on various subjects.

The Whatcom County Medical Society held its regular meeting at Bellingham, Feb. 14. attended by 36 members. Dr. E. W. Stimpson read a paper on the standardization of hospitals. After a thoro discussion it was voted that the society go on record as favoring standardization.

The Seattle Surgical Society at its recent meeting elected the following officers for another year: Pres. Walter Kelton; Vice-Pres. John Hunt; Sec'y.-Treas. C. E. Hagyard.

Returned From War Service. Dr. Spiro Sargentich, well known for many years in Washington and Oregon, returned to Tacoma for practice after six years of war service. He is a Montenegrin by birth and was in active war service during its entire period in Southeastern Europe. being one of the first American doctors to enlist in the service of the allies.

Ordered to San Francisco. Dr. J. S. Bolton who has been in charge of the Puget Sound immigration district was last month ordered to San Francisco to take charge of the fight to stamp out an epidemic of cebrospinal meningitis.

Elected President. Dr. G. A. R. Steiner, of South Bend, has been elected President of the Commercial Club of that city.

Dr. W. J. Miller, recently of New York, has located for practice at Hoquiam.

Dr. Albert Morefield has located for practice at Wapato. He formerly practiced in Oregon.

IDAHO.

The Shoshone County Medical Society held a meeting at Kellogg, Feb. 3. Papers were read by a number of visiting physicians from Spokane. Dr. Marshall talked on the League for the Conservation of Public Health, establishment of which is being agitated in Idaho.

Agitation Over Tuberculosis Hospitals. The legislature of 1918 passed an act for the construction of two tuberculosis hospitals. At the recent session a bill was presented for the erection of such institutions at Orofino and Blackfoot. These institutions were originally planned for the treatment of returned soldiers. Since the government has been caring for these tuberculosis patients. it was maintained that their construction by the state was unnecessary. The physicians of Southern Idaho presented a petition that the matter shall be compromised by building one hospital by the state. The state tuberculosis commission recommended that such an institution shall be built immediately at Payette.

Appointed County Physician. Dr. C. C. Conant, of Weiser, was appointed county physician by the Board of County Commissioners.

OBITUARIES.

Dr. E. Bolink of Seattle, Wash., died Feb. 6, after an illness of nearly a year. He was born in Holland. in 1845, and has been a resident of the U. S. since 1871. He practiced for a time in Minnesota and came to Seattle in 1887. For many years he maintained drug stores in different parts of the city. In 1865 he joined a Masonic Lodge in the West Indies and for the last 56 years maintained his membership in that lodge.

Dr. J. R. Shiley, of Seattle. Wash., died at Great Lakes Naval Training Station, Feb. 16, after a short illness of pneumonia. He was 35 years of age. During the war he served in the navy and about six weeks ago again enlisted.

Dr. Charles M. Chandler, of Salt Lake City, Utah, died Feb. 22. He was 63 years of age. Before studying medicine he was employed as a telegraph operator. For a time he practiced in Cheyenne, Wyo., and in 1899 located in Salt Lake City.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Common Infections of the Kidneys With the Colon Bacillus and Allied Bacteria. By Frank Kidd, M. D., B. C.. F. R. C. S. Eng. and a Lecture on the Bacteriology of the Urine, By Dr. Philip Panton. Cloth, 331 Pp. $7.25. Oxford University Press, London and New York, 1920.

This book is of extraordinary interest because it shows that renal infections are almost always hematogenous infections; and, much more than this, that the body is a sponge into which, from the skin, mucous membranes, and digestive tract, thru the lymphatics and the blood, bacteria are constantly passing in health. The bacteria escape constantly thru the kidneys and liver, and are eliminated in the bile and urine. If the general resistance is lowered, these bacteria find their way into the tissues and we get infections of the bones, joints, muscles, serous cavities, appendix, gall-bladder, tonsils, lymphatic glands, kidneys, prostate, etc. Thus chills lumbago, rheumatism, lumbago, headache, common colds are due to intermittent bodily invasion of bacteria. . Pyelitis, pyelonephritis and acute fulminating bacterial infarction of the kidney are due to heavy showers of bacteria which are too great for the kidney to pass thru without local damage. The blood frees itself so rapidly of these bacteria that they are difficult to find except at the times they occur in large quantities.

The author affirms that colon bacilli, staphylococci and streptococci are thus constantly passing thru the body and are of use in digesting cellulose, etc., and ordinarily keep the body autoinoculated and immune. When virulent bacteria escape from the blood into the kidneys, they may cause general bacterial infarcts, and intense and painful multiple abscess formation and gangrene, without even the appearance of pus in the urine. Such a case has recently been observed by the reviewer and has been ably described by Brewer. One can only obtain positive blood cultures from such cases during the rigors, when showers of bacteria are passing into the blood. The practical part of the work, with the description of technical methods of examination of the kidneys and bacterial examination of the urine, with the detailed records occupying almost 100 pages of the book, are equally valuable It is a book that will appeal as strongly to medical men generally as to specialists.

Winslow

A Text-Book of Histology. By Frederick R. Bailey, A. M., M. D. Sixth Revised Edition. Profusely illustrated. 733 pp. $5.50. William Wood & Co. New York. 1920.

This work is prepared for and adapted to use by the technician rather than the student. It is an admirable text-book for the instructor in histology and of service to the laboratory technician, but one interested in the subject of histology, independent of specimen preparation, would prefer to follow his subject in a work more free from technical details. Its modernity is shown by the statements that certain smooth muscle arises from the ectoderm and that certain epithelium arises from the mosoderm. Its illustrations are of themselves a quite complete postgraduate course in histology.

West

A Laboratory Manual and Text-Book of Embryology. By Charles W. Prentiss. Late Professor of Microscopic Anatomy, Northwestern University Medical School. Chicago. Revised and Rewritten, by Leslie B. Arey, Professor of Microscopic Anatomy, Northwestern University Medical School. Third Edition, Enlarged. Octavo volume of 412 pp. with 388 illustrations, many in color. Philadelphia and London. W. B. Saunders Company, 1920. Cloth, $5.50 net.

As a text-book this work is excellent. The subject is considered in the following order: The germ cells, mitosis, maturation and fertilization; cleavage and the origin of the germ layers; the study of chick embryos; human embryos and fetal membranes; the study of big embryos; the dissection of big embryos; development of the face, palate, tongue, salivary glands and teeth; the entodermal canal and its derivatives; the urogenital system; the vascular system; histogensis; the morphogenesis of the skelton and muscles; the morphogenesis of the central nervous system; the peripheral nervous system.

The illustrations are profuse and of excellent character. It is of use to instructor, student and technician, rather than to the practician.

West.

A Practical Medical Dictionary. By Thomas Lathrop Stedman, A. M., M. D., Editor of the "Twentieth Century Practice of Medicine," etc. Sixth Revised Edition. Illustrated. 1144 pp. $650. William Wood & Co., New York, 1920

Every physician should have a medical dictionary at his right hand. There is none better published than this. The first edition appeared in 1911, with a new edition every subsequent two years. The fact that a new issue of any publication is called for so frequently is of itself a convincing proof of its necessity. This volume contains twenty more pages than the fifth edition. The great number of new words and new definitions, that have accumulated during the period of two years, have demanded this enlargement. This volume is not only a definition of words; it is an epitome of medicine. If one desires to be exact and accurate in the use of medical terms in spelling, defintion and application, he cannot do better than possess a copy of this book. West

Refraction and Motility of the Eye. With Chapters on Color Blindness and the Field of Vision. Designed for Students and Practitioners. By Ellice M. Alger, M. D., F. A. C. S. Professor of Ophthalmology at the New York Postgraduate Medical School. etc. With 125 Illustrations. Second Revised Edition. 394 pp. $2.50. F. A. Davis Co., Philadelphia, 1920.

This is a well written little book, designed especially for students. The author's years of experience in teaching enable him to present the subject in a clear and instructive manner. Special emphasis is laid on practical application of the various procedures discussed, without neglecting too much essentials of theory. One feature, not found in many other books, is the effort made by the author to constantly impress upon his students the importance of various refrtactive and muscular malfunctions as related to general medicine. The various chapters are arranged in logical sequence, each subject leading up to and preparing for the following one. Color blindness and the field of vision are discussed. Students will find the book a valuable addition to their libraries. Mattice

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The Difficulties and Emergencies of Obstetric Practice. By Comyns Berkeley, M. A., M. D., M. C., Cantab., F. R. C. P., Lond., M. R. C. S., Eng., Obstetric and Gynecological Surgeon to the Middlesex Hospital, etc. and Victor Bonney, M. S., M. D., B. Sc., Lond., F. R. C. S., Eng., M. R, C P Lond., Assistant Obstetric and Gynecological Surgeon to the Middlesex Hospital, etc. Third Edition with illustrations. 809 pp. $11.00 P. Blakiston's Son & Co., Philadelphia, 1921.

As indicated by its title, this volume deals with the complications and emergencies of obstetrics, and makes no reference to the physiology and management of normal pregnancy. It is an expression of the personal experiences of the authors. Beside dealing with matters pertaining to the delivery it devotes considerable space to obstetric operations. An abundance of illustrations greatly enhances the value of the text. This third edition adds a chapter on the feeding of infants. A great many topics are covered in this volume, but with a conciseness and clearness that make it a very valuable reference work for everyone practicing obstetrics. SMITH.

Dermatology: The Essentials of Cutaneous Medicine. By Walter James Highman, M. D.. Chairman Section on Dermatology and Syphilology, American Medical Association, etc. 482 pp. The Macmillan Company, New York. 1921.

This is a work of practical merit and a scientific exposition of the subject, dealing with this branch of internal medicine. The author has written from the standpoint of a new and sounder conception of the essentials of cutaneous medicine. Here will be found constructive analyses and grouping of interrelated diseases of known common pathology and causation and, as far as practicable from the standpoint of internal medicine, thus setting aside many dermatological entities, subdivisions and traditions wrapped up in confusing nomenclature, together with detailed description, bibliography and superfluous treatment of these selfsame diseases. But all essentials to the purpose have been maintained. Thruout the book will be found illuminating, comprehensive and with a choice of excellent illustrations and simplified treatment. GABIE.

Public Health and Hygiene. In Contributions by Eminent Authorities. Edited by William Hallock Park, M. D., Professor of Bacteriology and Hygiene, University and Bellevue Medical College. Illustrated with 123 Engravings. 884 pp., $10. Lea & Febiger, Philadelphia & New York, 1920.

This book fills the need of practitioners and public health officials for a volume dealing with the many aspects of public health and matters of hygiene. As herein stated, one person cannot possess the technical knowledge and personal experiences to direct all branches of public health work. Hence this volume comprises articles by the most eminent authorities in this country on various aspects of these subjects. Dr. Park has chapters on microorganisms, infectious diseases and disinfectants. There are other chapters on foods, vitamines, water and sewage, hygiene in its various aspects. Dr. Goddard has a chapter on mental defectives, their prevention and control. No book has been presented containing such a variety of public health matters from so many well known authoritative sources. Anyone interested in public health or hygiene should read this book. SMITH.

Text-Book of Nervous Diseases. For the use of Students and Practitioners of Medicine. By Charles L. Dana, A. M., M. D., Ll. D. Professor of Nervous Diseases in Cornell University Medical College, etc. Ninth edition with 260 illustrations, including four plates in black and color. 655 pp. $6.50. William Wood & Co. New York. 1920.

Medical books go out of date rather easily, but at the end of twenty-six years this work by Dana is publishing its ninth edition. This book is arranged to serve those who seek fundamental knowledge in neurology, and also to provide a work of reference for diseases of the nervous system. In this edition neurological surgery, shock and emotional strain are given special attention. Also the author has added a chapter on endemic encephalitis and another on medical psychology. GULICK.

A Synopsis of Medicine. By Henry Letheby Tidy, M. A., M. D., B. Ch. (Oxon.) F. R. C. P. (London) Assistant Physician to St. Thomas's Hospital, etc. 952 pp. $6.50. Wm. Wood & Co., New York, 1921.

This is not intended as a textbook of medicine but a synopsis of the principles of importance, brought down to the present time. Under thirteen sections diseases are classified so as to be studied in a concise and complete groups. The general arrangement follows that of Osler's Principles and Practice of Medicine. There is a free use of black-faced type for subdivisions which readily attract the eye, and concentrate one's attention. A complete index is a valuable feature of the work.

SMITH.

The Community Health Problem. By Athel Campbell Burnham, M. D. Health Service, Atlantic Division, Red Cross, etc. 149 pp. The Macmillan Company, New York, 1920.

This volume covers many aspects of public health interests. In a concise form the author discusses such subjects as sickness as the cause of poverty, the public health nurse, workmen's compensation insurance, industrial medicine, state medicine, social hygiene, rehabilitation of the disabled and other allied subjects. Most topics are introduced by a historical review, followed by much interesting and instructive information concerning the working out of the various subjects under consideration. It is a valuable publication for one interested in this line of work. SMITH.

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ORIGINAL CONTRIBUTIONS

TUBERCULOSIS OF THE SKIN IN SOME OF ITS GENERAL MEDICAL ASPECTS.

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There is no aspect of cutaneous diseases which should have more interest for the physician in general practice than tuberculosis of the skin. It is equally true that in no field of cutaneous medicine is a complete revision of our ideas more necessary. While I am in this written presentation handicapped by the inability to use large numbers of illustrations, I believe, nonetheless, that I can suggest certain points of interest in the field of cutaneous and general tuberculosis.

The reaction of the body at large to the tuberculosis bacillus and its toxins varies with a variety of factors. The type or strain of organism, the resistance or susceptibility of the individual, the mode and site of the inoculation, the immunologic or allergic response, and the mode of distribution, all modify the clinical picture of the disease. Every one of these considerations holds true of tuberculous efflorescenses in the skin. On the one hand, hematogenously distributed tuberculosis bacilli lodged in the skin of a patient give rise to the conventional type of reaction, a true tuberculosis with tubercles and giant cells, clinically recognizable as lupus vulgaris. On the other hand, in individuals exhibiting a special type of allergic susceptibility hemotogenously distributed tuberculosis bacilli set up a violent localized inflammatory response which lacks the characteristic histologic architecture of true tuberculosis.

Such patients, instead of developing lupus vulgaris, develop the so-called papulonecrotic tuberculid, whose essential lesion I shall presently describe. Then, again, encapsulated foci containing tuberculosis bacilli, even tho the organisms themselves are not released into the circulation, presumably affect the reaction of the entire body, whether thru circulating toxins or by other less understood means. These circulating toxins may give rise to cutaneous reactions at a distance from the primary tuberculous focus, in which the organism as such is not concerned. Chief among these lesions is lichen scrofulosorum which seems to be a true tuberculid in the sense in which Darier first proposed the term. There is nothing mutually exclusive about these various types of reaction and a patient may present at one and the same time what is histologically a true tuberculosis or lupus vulgaris of the skin, and also a papulonecrotic tuberculid which is the expression of his allergic reaction to the organism.

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*Read before the Twenty-Sixth Annual Meeting of Utah State Medical Association, Ogden, Utah, Sept. 7-8, 1921.

I should like now to comment briefly on the fundamental characteristics and diagnostic significance of certain of these types. True tuberculosis of the skin, presenting the familiar histologic characteristics of the disease, may be the sequel of inoculation from within or from without. If from within, the lesions are apt to be wide spread; if from without, they are apt to be localized, often adjacent to a focus of visceral tuberculosis, and to show evidence of extension by contiguity. Whatever be the mode of distribution of the organism, the pathologic reaction is the same. Tubercle formation is the essential feature, with subsequent caseation, necrosis, and attempted healing. The tubercle in the skin is visible as the so-called apple-jelly nodule, a translucent brownish pinhead-sized nodule in the skin, usually visible only after pressing on the erythematous inflammatory surface with a piece of glass, which permits of blanching while rendering the texture of the tissue visible. The apple-jelly nodule, however, is not clinically-pathognomonic of tuberculous lesions, since essentially similar lesions may occur in syphilis, as pointed out by Nicolas. The fate of the apple-jelly nodule and of the entire tuberculous lesion is dependent on the virulence of the organism and the reaction of the involved tissue. If the organism is of low virulence and the tendency to heal is marked, the tuberculous lesion is nonulcerative and involutes, leaving a thin papery scar. On the other hand, if the virulence is considerable and the resistance low, an ulcerative lesion develops which may produce extensive destruction, especially when it occurs about the mucocutaneous junctions. This type of lupus vulgaris produces the familiar lesions about the nose and mouth, and below the eyes, in which skin, subcutaneous tissue, and often cartilage are dissolved away with alarming facility. The "bitten out" ala nasi is one of the clinical ear marks of this type of the disease. Lupus vulgaris of the nose may sometimes be distinguished from cutaneous syphilis of this region by the fact that the latter, while destroying the subcutaneous tissue, leaves the cartilage relatively unaffected.

Another objective aid in distinguishing lupus vulgaris from syphilis is the difference in the characteristics of the scar. The scar of a nodulo-ulcerative syphilid is soft, pliable, and smooth, and exhibits remarkably little tendency to contraction. The scar of lupus vulgaris, on the other hand, is markedly contractile, apt to be tough and banded, and usually produces marked distortion. For example, lupus vulgaris, like blastomycosis, in the region of the eyelid almost invariably produces a marked ectropion. Late syphilids, on the other hand, may wander all about the face and involve the eyelid itself without producing any marked distortion. None of these criteria is infallible, however, and an extensive lupus vulgaris of the skin may at times produce a paper-like scar, while syphilis does the reverse. The persistence of apple-jelly nodules in the scars of lupus vulgaris is sometimes of use in diagnosis.

Inoculation tuberculosis of the skin is most familiar in the form of tuberculosis verrucosa cutis, the warty papule or placque with a rough, horny surface and an erythematous areola. Lesions of this type usually occur on surfaces exposed to trauma and are not uncommon about the finger nails. Personally, I believe that tuberculosis verrucosa cutis may also be the result of hematogenous distribution of the organism and that it is, therefore, often a clue to a visceral focus which might otherwise go unsuspected. True tuberculous nodules of the type of lupus vulgaris (solitary tubercles which are not warty) may occur, for example, on the ear, and may ulcerate centrally and heal peripherally exactly as does lupus vulgaris. Lipschutz, among others, pointed out that the chicken type of tuberculosis (typus gallinaceus) is frequently responsible for this type of reaction, one of whose distinctive pathologic characteristics is the large number of tuberculosis bacilli which can be found in the excised material.

It has been my good fortune to see a number of examples of a type of inoculation tuberculosis with which physicians in general should be more familiar. This type produces, at the site of inoculation, a trivial reaction in the form of a dozen or more tubercles, sometimes with a slight tendency to ulceration, and prompt central healing. The infection quickly metastasizes to the regional lymph-nodes, producing there an immediate suppurative reaction with sinus formation. By the time the regional lymphatic process is fully developed the original focus may have all but disappeared. In a case in which the original focus was on the great toe and the lymphatic reaction in the groin, the lymphatic tumor was incised and a diagnosis of lymphosarcoma made by a competent pathologist. Just what type of organism is responsible for this type of reaction I am yet unable to say. While lymphatic tuberculosis is under discussion, I should call your attention to elephantiasis, secondary to tuberculosis involvement of regional lymphatics, of which I have seen several excellent examples, including acquired lymphangioma of the vulva, following obliteration of the inguinal glands by a tuberculous process.

So much, then, for true tuberculosis of the skin. The Wassermann reaction and the examination of pathologic material must be resorted to frequently in the identification of doubtful cases. A focal reaction to tuberculin, 0.5 mg. subcutaneously, often clinches the nature of the process by producing a focal reaction in the lesion, altho I have seen such focal reactions in streptothrix infections. It must not be forgotten that lupus vulgaris will show focal reactions to arsphenamin also at times (pseudo-Herxheimer reaction), and that a suspected syphilitic lesion which clears up very slowly under arsphenamin deserves critical investigation for tuberculosis and mycotic infections.

The borderland of tuberculosis of the skin has been extending of recent years in the direction of certain other dermatoses, among which should be mentioned erythematous lupus, and its transitions into toxic erythema and into sarcoids. Lupus erythematosus is not a true tuberculosis of the skin. The name is an unfortunate choice. Yet its association with tuberculosis and with bullous erythema multiforme and other cutaneous manifestations of septic infections is becoming increasingly apparent. The diagnosis of erythematous lupus is one of the simplest in all dermatology, once one learns to appreciate the essential lesion, which is an inflammation of the follicles with the formation of adherent conical, horny plugs. The coalescence of these hyperkeratotic plugs forms the adherent scale. The sequel of the follicular inflammation is the atrophy so characteristic of the disease. Erythematous lupus about the face and in the scalp is highly resistant and disfiguring, altho seldom a serious condition as such. The destruction of the hair follicles leads to patches of baldness which are often a clue to the diagnosis. When erythematous lupus appears on the hands, it must be regarded as a transition towards the grave and often fatal toxic form of lupus erythematosus disseminatus. Ordinary cases of erythematous lupus have been known to respond to the administration of tuberculin by developing the fulminating disseminate type with hyperpyrexia and death. For that reason tuberculin should not be used in the diagnosis or treatment of lupus erythematosus.

The therapy of erythematous lupus is highly unsatisfactory. No honest man will ever offer to cure the disease, since recurrence is almost inevitable and the rare cures seem not to be dependent on any therapeutic measures. The extirpation of foci of infection, both dental and tonsillar, seems to have a temporary beneficial effect. Treatment with mild cutaneous stimulants, the internal administration of quinin in liberal doses, the use of the Kromayer lamp, and outright destruction of the lesions with carbon dioxid snow are the best available means of treatment. I discountenance the use of x-ray or radium on either lupus vulgaris or lupus erythematosus on account of the very grave risk of rapid malignant degeneration. The scars of both conditions show a spontaneous tendency to carcinomatous breakdown which is accentuated by radium or the x-ray.

Transitions from erythematous lupus into the sarcoids are not infrequent. Sarcoids are cutaneous tumors of various types which I shall not discuss in detail. The commonest type, the Boeck sarcoid, is frequently mistaken by physicians and surgeons for true tuberculosis because of the nests of epithelioid and giant cells which it contains. Dense collections of small round cells, as in the Darier-Roussey sarcoid, often suggest sarcoma to the general pathologist. Certain sarcoids are, in all probability, atypical forms of tuberculosis. Other types may be accompanied by glandular and visceral manifestations which suggest a relationship to Hodgkin's disease and the lymphomas. The prompt response of many sarcoid lesions to the internal administration of arsenic, and in some cases to arsphenamin, suggests the advisability of calling dermatologic consultation before a brownish or purplish nodule or tumor in the skin, especially of the face, is excised or regarded as malignant.

Lichen scrofulosorum belongs, in all probability to the toxic manifestations in the skin produced by visceral tuberculosis. It has been reproduced experimentally by rubbing a tuberculin ointment into the skin of patients with tuberculosis. The essential lesion is follicular, as in erythematous lupus, a pale yellow papule forming about the mouth of the hair follicle, and a spinous plug usually appearing in the mouth of the follicle. These lesions are characteristically grouped into patches, whose gross appearance often suggests a localized goose flesh.

In children they occur most commonly on the flanks and the abdomen. In the adult I have seen variations, ranging from the appearance of the grouped follicular syphilid covering the trunk and extremities, to symmetrical patches over the buttocks and inner aspect of the upper arm. Care must be taken to distinguish the condition from the follicular type of seborrheic dermatitis. Lichen scrofulosorum points practically infallibly to a focus of visceral tuberculosis, for which the most careful search should be made. As it happens, most of my cases have been associated with pulmonary manifestations, altho it is the experience of other dermatologists that such association is rare. I have also seen lichen scrofulosorum in association with osseous tuberculosis.

At this point I should like to interpolate, before passing to the papulonecrotic tuberculids, a comment on a type of foreign-body reaction in the skin which the general pathologist will almost invariably call tuberculosis. I refer to the so-called paraffinoma. A modification of this tumor was shown by Mook to be produced by the subcutaneous injection of camphorated oil which had been made up with liquid petrolatum instead of olive oil. Large quantities of this adulterated camphorated oil were used hypodermically during the influenza and pneumonia epidemics of the past two years. It is for this reason that almost any one of us may at any time encounter the condition. Mook describes the lesion as a foreign-body tumor, consisting of deep, livid nodular tumefactions with smaller subcutaneous nodules frequently arranged in chains, suggesting malignant metastasis and often extending along the regional lymphatics towards the neighboring lymphnodes. In the active inflammatory phase necrosis may seem to threaten and the heat and swelling suggest the presence of pus. When, thru rest or treatment, the active process subsides, the nodular pinkish infiltration may suggest fibroma, fibrolipoma, sarcoma, and so forth. Excised tissue yields a picture which in frozen section especially is very suggestive of tuberculosis. The Swiss-cheese or blow-hole structure characteristic of the pariffinoma is less marked in these lesions, owing to the greater fluidity of the foreign substance. On the other hand, caseation is either absent or inconspicuous and the giant cells contain numerous oil droplets. In frozen sections stained with Sudan III the oily contents of the vacuoles in the tissue stains yellow, as distinguished from the brilliant orange of human fat. Radical excision of these infiltrations, if they are not too extensive, is an effective mode of treatment. If the lesion is too large for excision, wet dressings and rest may cause the process to subside into inactivity.

I should like now to direct attention to the group of cutaneous lesions associated with the hematogenous distribution of tuberculosis bacilli in patients who exhibit allergic reactions. I must emphasize that the hemotogenous distribution is not as yet conclusively demonstrated but is by all odds the most probable and satisfactory explanation of the clinical phenomena observed. The lesions of this type are grouped in general under the term of papulonecrotic tuberculids. The essential lesion is a papule, inflammatory in character, which within a few hours of its appearance develops a central vesicle or softening, associated with a necrosis of the involved tissues. This central necrosis dries down to form a hard dark conical central plug. When this plug is detached in the process of healing, a scar persists. Papulonecrotic lesions may occur on any part of the body. The papulonecrotic tuberculid of the face is usually spoken of as acnitis. It is distinguished from ordinary acne by the fact that the lesions have necrotic instead of pustular centers, are apt to be all of the same age, and are usually not associated with comedones and seborrhea. It is occasionally confused in severe cases with variola, from which its course distinguishes it, and with the papular syphilid, from which the negative Wassermann reaction and characteristic papulonecrotic lesions usually distinguish it. The involvement of the ear in acnitis, producing a scarring that gives to the ear a moth-eaten appearance, was present in 13 per cent of our cases. The overwhelming proportion of all papulonecrotic tuberculids present some lesions on the extremities. When these occur on the hands and fingers, they are spoken of as folliclis. When they occur on the lower extremities the lesions may vary from the multiple papulonecrotic type to large indolently ulcerative placques, occurring by predilection on the posterior surface of the leg near the calf. This larger type of lesion is spoken of as erythema induratum. The multi-polycyclic configurations, and their frequent association with other tuberculids, assist in distinguishing the condition from syphilis. When the papulonecrotic tuberculid occurs on the trunk, the lessions are fundamentally identical in morphology with those elsewhere and give rise to varioliform scarring which, while suggestive, is not pathognomonic. Tuberculids in general escape observation more because of inadequate examination than because of their rarity. Their tendency to occur on the extremities, which are so seldom properly inspected on general examination, leads to their being frequently overlooked. Yet they are among the most distinctive of dermatologic lesions and when seen once or twice are never forgotten. The small white variola-like scar, with its ring of hyperpigmentation, found on the extensor surfaces, and especially about the elbows, and the still smaller punctuate white scarring on the dorsal surfaces of the fingers are often highly characteristic.

The tuberculids show a marked tendency to seasonal recurrence, and the clue to the identity of more than one vernal cough, abdominal distress, or enlargement of a group of glands after a seemingly banal infection can be found in a group of these papulonecrotic lesions, appearing simultaneously on the face, fingers or legs. I have seen a wide variety of diagnostic blunders which might have been avoided thru familiarity with these lesions. Two-thirds of the cases which we have observed have been associated with tuberculous adenitis and have served as a clue to the real identity of supposed Hodgkin's disease, lymphosarcoma, and shadows at the hilus of the lung. We have been able to clinch the tuberculous character of peritonitis and salpingitis with the aid of these lesions, and by recognizing erythema induratum have cleared up more than one suspicion of syphilis. In fact, confusion with syphilis seems to be a not uncommon diagnostic error. It is dependent mainly on unfamiliarity with the appearance of the lesions on the fact that they leave scars, on the fact that they frequently appear with arthralgias, myalgias, and tenosynovitis, and on the frequent concomitance of loss of weight and anemia. These possibilities of confusion are further reinforced by the fact that false positive Wassermann reactions, usually however, only partial in character, can occasionally be obtained in patients with tuberculids, as pointed out by Petroff, Snow and Cooper, Ravaut, and Schoenfeld, and confirmed by our own experience. I have known patients with tuberculids to be treated for syphilis for years as a result of the finding of a weak positive Wassermann reaction associated with a prompt therapeutic response to arsphenamin.

The association of papulonecrotic tuberculids with foci of tuberculosis is practically beyond dispute. In a high percentage of patients the lesion can be identified by sufficiently careful clinical investigation.

An equally interesting association of these lesions is that with foci of septic infection. Rheumatism and tonsillitis run parallel with pneumonia and influenza in the symptomatic background of tuberculids. Just what this association may be I am as yet unable to say. Possibly the streptococcus prepares the soil for allergic response to the hemotogenously distributed bacillus of tuberculosis. Perhaps the reverse relation is the case. In any event, the diagnostic assistance to be obtained from the identification of the tuberculid does not seem to be materially affected.

What has been to me the most interesting aspect of the study of tuberculids has been certain apparent clinical relations between the papulonecrotic tuberculid and erythema multiforme, purpura, and erythema nodosum. On several occasions I have observed the onset of miliary tuberculosis to take the form of rheumatic purpura. Erythema nodosum, familiar to all in the form of the pinkish or purplish nodose lesions, occurring over the pretibial region in supposedly rheumatic subjects, and undoubtedly due in many cases to the streptobacillus isolated by Rosenow, may be produced likewise, I believe, by the bacillus of tuberculosis. I have among my records a necropsy report, in which no other focus of infection than the tuberculous focus, whose rupture led to the patient's death from miliary tuberculosis, could be identified. Similar cases are on record in the literature. It, therefore, becomes imperatively necessary for every physician who is called on to deal with a case of erythema nodosum or even of purpura or recurrent erythema multiforme to make a thoro investigation for clinical tuberculosis, and to keep the patient under observation until the possibility of a tuberculous etiology is settled.

The treatment of papulonecrotic tuberculids has been of interest to me and I have been fortunate in securing fairly satisfactory results by the use of arsphenamin in these highly refractory conditions. The technics of dosage and administration are essentially the same as those employed in the treatment of syphilis, and are discussed at greater length in one of my publications on the subject. The effect is essentially nonspecific and consists in an elevation of the general resistance of the patient rather than in any parasiticidal action on the tuberculosis bacilli as such. Persistence is essential, and permanence, even in a strikingly good result, cannot be assured. On the other hand, marked gains in weight and improvement in well being, a rapid disappearance of all active lesions, and the restoration of patients, who have been partially or completely incapacitated, to activity and health, are very gratifying. A low or diminished resistance is a distinct contraindication to the use of the drug.

I shall be glad if this fragmentary and incomplete presentation leads you to interest yourselves in tuberculosis of the skin from the standpoint of internal medicine and surgery. I have no doubt that you will find, as I have, that an understanding of the pathologic mechanism underlying the reactions produced by tuberculosis bacilli in the skin will lead you now and then to a diagnastic coup d'etat, and perhaps to that gratifying sense of at least partial comprehension of the real inwardness of things, which is the reward of accurate and painstaking observation.

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ANAPHYLAXIS IN ASTHMA AND HAY-FEVER.

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The subject of anaphylaxis in asthma and hay-fever can be considered from the same standpoint because of the close association of the two, both having the same underlying causes and hay-fever frequently merging into asthma, the occurrence of the two pathologic processes being given by different authorities as high as 40 per cent. While the phenomena of anaphylaxis have long been understood and accepted, the application of the principles of anaphylaxis to the causation of hay-fever and asthma has only been made in recent years. The emanations from certain animals, pollens from certain grasses, and ingestion of certain foods, have been known to be contributing factors to the cause of asthma, but their manner of causing it was appreciated only after applying the phenomena of anaphylaxis to it.

Wolff-Eisner, in 1906, by his studies interpreted hay-fever manifestations as an anaphylaxis and Meltzer, in 1910, in experimentation on guinea pigs, observed that the anaphylactic reactions he encountered in the animal were clinically the same as the symptoms of bronchial asthma in the human. Further observations by Dunbar, Clowes, Cooke and the exhaustive work of I. D. Walker and Wodehouse have amply substantiated these earlier observations.

While the part anaphylaxis plays in asthma and hay-fever is now accepted, the exact biochemical factors concerned in the causation of anaphylaxis are not agreed upon as yet. Anaphylaxis, as a cellular reaction due to fixation of antigen with antibody in a previously sensitized individual, we know exists in certain clear-cut clinical manifestations, such as asthma, hay-fever, urticaria and angioneurotic edema, but whether these phenomena are due to the meeting of whole protein, or the toxic split protein with its antibody, or due to a toxic body produced when antigen meets antibody, is not unstood but it is certain that a protein is a factor in the causation of these conditions. These proteins enter the body in various ways (inhalations, ingestion, absorptions) from widely separated sources.

In regard to bronchial asthma, these proteins have been grouped into those arising from:

1. Food proteins.
2. Pollen proteins (plant emanations).
3. Epidermal proteins (animal emanations, horse dander, feathers, etc.)
4. Bacterial proteins (foci, teeth, tonsils, sinuses, etc.).

Food proteins are multitudinous, as are the pollens. The bacterial proteins, as well as the animal epidermal proteins, are not so numerous, but they are a prevalent cause, nevertheless.

In a series of 600 cases of asthma, reported by Walker from the Peter Bent Brigham Hospital, the most frequent causative factor was the epidermal proteins (100 cases—16 per cent), the most frequent epidermal emanation being horse dandruff 57 cases; the next in frequency being as follows: cat hair 6, feathers 3, cattle hair 3, wool 1, the remaining number being a combination of horse dander with one of the other epidermal proteins. Of his observations, therefore, it is noted that the horse dandruff is a very prolific cause of bronchial asthma.

The next group of proteins in frequency was the food proteins (74 cases—12 per cent), closely followed by the pollen proteins (66 cases—10 per cent). Of the food proteins the cereals were the chief offenders (36 cases), the remaining 38 cases being due to various other foods. Of the cereals, the split wheat proteins, proteose leucosin, globulin and gliadin gave the most reactions. Barley, potato, rye, cat and corn particularly, and any of the common vegetables may be an occasional cause. Among the other food proteins, egg, casein, lactalbumen, fish, pork, lamb, chicken and beef are not infrequent causes.

It is noted of food proteins that the cereal grains and the other forms of foods, such as eggs and milk, which are the foods first indulged in during infancy, are the most frequent causes of asthma where foods are concerned. Talbot reports 29 out of 45 asthmatic children reacted positively to egg.

It will be seen that, if the age of onset of asthma is during the early life of the individual, the cause will bear some relationship to the foods which predominate in the diet during that period. The age of onset bears a distinct relationship to the percentage of cases which will prove to be sensitization cases.

It has been shown by Walker that of those who began asthma in infancy 80 per cent were sensitive to proteins, whereas of those who began it in childhood 60 per cent were sensitive; of those in young adult life 50 per cent were sensitive, and of those in adult life 25 per cent were sensitive, while in cases who developed asthma when over 50 years of age, none proved to be sensitization cases. Thus it is noted that the percentage of sensitization decreases appreciably as age of onset increases.

As to the age of onset of hay-fever, it was revealed by a questionnaire sent out by the United States Public Health Service in Louisana that 73 per cent of cases do not develop until after the twentieth year. As Scheppergrell remarks, the fact that it is not an infectious disease and is not presumably dependent upon any condition associated with maturity is an interesting fact for consideration. It is possible that the ingestion of certain types of food may produce an anaphylaxis, of which hay-fever symptoms may be a result.

Desensitization of a sensitized patient to food proteins is not practical, the avoidance of the food at fault being the most definite manner of relieving the patient. However, it is not altogether impractical, and it may be that in the future from further researches it will be possible to desensitize for food, and this will be of importance in the matter of the urticarias. Sensitization in the latter condition to foods is a matter of common clinical observance. The biochemical phenomena at work in the food urticarias are in no manner different from those of bronchial asthma and hay-fever, only in that of urticaria the sensitized epithelium is that of the intestinal mucous membrane, while in bronchial asthma it is the epithelium of the bronchial mucous membrane and in hay-fever that of conjunctiva and the upper respiratory tract.

Pollen Proteins. Bearing in mind the fact that only the wind-borne pollens are the cause of hay-fever will frequently prevent us from accepting the patient's diagnosis as to the causation. Such pollens as from the rose, daisy, golden-rod, strawberry, honeysuckle and chrysanthemum are all insect-carried pollens, and it requires the direct inhalation of these flowers to produce an attack which makes for an easily avoidable cause.

The wind-borne pollens are inhaled alike by all those within the area at pollinating season, and just why they should produce symptoms in some of us and not in others can only be explained by the fundamental laws of immunity. Most of us are able to cope with this type of foreign protein. It is estimated that the percentage of sufferers from hay-fever in this country is about 1 per cent.

We recognize in a rather clear cut manner three distinct pollen seasons, the first being in the late spring, which has to do mostly with pollens of certain trees; the second an early and midsummer season, during which may be mentioned as the most common trouble producers in regard to asthma and hay-fever, timothy, red top, orchard grass and June grass; and the third pollen season which has to do with ragweed, the most common by far of the fall pollen proteins which are at fault. Ragweed hay-fever and asthma are prevalent in England and on the Atlantic seaboard and other parts of the United States but in this location we have a minimum number of cases due directly to it.

The pollen season will vary, as will the different pollens in various sections of the country, and a careful history, as regards time of onset of seasonal asthma and hay-fever and a proper knowledge of the topographical habitat of various pollens, is essential in arriving at the specific cause. If a patient should present himself early in his attack and from the history, pollens are suspected and there is no reaction to the common pollens, the patient's surroundings can be investigated by the patient himself, wearing on the coat lapel a cover glass smeared with glycerine, and the pollens found thereon identified.

Cooperation on the part of a sufferer from hay-fever or asthma will gladly be given, as there is hardly anything which he will not do for relief from his distress. The authors are now making an effort to have a botanical survey made of the Northwest states, Oregon, Washington and Idaho, which will be published in a later paper.

Bacterial Proteins. In about 10 per cent of sensitization cases reported by Walker, definite sensitization was shown to some bacterial protein, the most frequently met with being staphylopyogenes aureus, others being streptococcus hemolyticus, staphylopyogenes albus, different types of diphtheroid bacilli and pneumococci.

Frequently the serum of these bacterial sensitization cases has shown positive agglutination with the organism to which they are sensitive and autogenous vaccines made from the organism have given marked relief. There is not the specificity, however, to bacterial proteins as met with in the other forms of proteins but unquestionably bacteria do play some role in the causation and exaggeration of symptoms, particularly in the group of so-called asthmatic bronchitis, or atypical bronchial asthma, in which the patient does not have the typical paroxyms of bronchial asthma, but does experience marked dyspnea, inspiratory in type however, recurring colds and cough with tenacious sputum. Either in the typical or atypical asthma, the entrance of bacteria upon the mucosa, the integrity of which is altered in the direction of a lowered vitality, can be reasonably supposed to play an important contributing role in the production of symptoms. Ample evidence has shown that they are sometimes the primary factor, but there is no question, however, but what they are at all times important secondary contributing factors.

In hay-fever the pathologic changes which take place in the upper respiratory tract as an accompaniment to it, inflammation and infiltration of the mucosa with vascular and lymphatic stasis are factors which undoubtedly predispose to bacterial invasion, and the subsequent bacterial toxic absorption certainly adds to the symptom-complex. There is, many times, a definite train of events following in the wake of the anaphylactic rhinitis or hay-fever, which can be directly attributed to this very matter of bacterial invasion (primary or secondary).

After a varying period of toxicity from pus absorption or even from the absorption of toxic mucus, there comes about a well established bronchitis with recurring colds (so-called), cough and expectoration, and occasionally the hay-fever merges into a clear cut asthma, following which there appears an emphysema, with the well known characteristic alterations in the chest, and finally the patient passes into the cardiac phase due to right heart embarrassment.

The association between hay-fever and asthma is ascribed by some to the fact that the pituitary vagal center receives the sensory impulses from the nose and the reflex is established by efferent vagus fibres to the lungs. Another reflex pathway is thru the connection of the sphenopalatine ganglion with the vagus.

However, a careful history of a bronchitis or an asthma will at times reveal the fact that the real origin of the trouble is in the upper respiratory tract and those dealing with diseases of the nose and throat should then correct any pathology present which is thought to be the causative agent. Where there is no specific cause to be made out in any of the protein tests, careful search should be made for toxic absorption from accessory sinuses, due to improper drainage or to teeth or septic tonsils, also hyperplastic or suppurative ethmoiditis, the latter occasionally being an obscure cause. With reference to various organisms, any of the above conditions have been found to be the primary factor and proper attention to these abnormalities has resulted in curing the patient.

Muliple sensitizations from many different proteins have been met with by all workers in human sensitization. Cooke reports as high as 42 per cent of hay-fever cases showing multiple sensitizations but, as he uses nothing but the intradermal test, this is no doubt high, inasmuch as the intradermal test in itself first causes a traumatic wheal by the mere mechanical presence of the solution, and it has been shown by Walker in an exhaustive comparison between the intradermal and cutaneous tests that weak dilutions by the intradermal method sometimes give a much more positive reaction than stronger dilutions, and that intradermal reactions do not decrease with treatment as cutaneous reactions do.

The cutaneous test is, therefore, preferable and carried out in the following manner:

Small cuts are made on the flexor surface of the forearm with a sharp scalpel, about one-eighth of an inch long, not deep enough to draw blood but only to penetrate the skin sufficiently to permit of lymphatic absorption. The protein is then placed on the cuts, leaving one as a control, and a drop of n/10 NaOH is added to promote absorption. After 25 or 30 minutes this is washed off gently and the reaction appears as a raised white urticarial wheal, surrounded by a pinkish red areola.

For a reaction to be interpreted as positive this wheal should measure at least .5 cm in diameter. For determining roughly the degree of reaction a wheal of .5 cm. diameter is +; .75 cm. in diameter ++; and 1 cm. in diameter ++++. Occasionally a sensitive urticarial skin is encountered which will show large erythematous reactions surrounding all the cuts but not always causing the raised white elevations. It is well in these instances to repeat the tests at another sitting.

A great many diseases can be associated with manifestations of changes in the vegetative nervous system and the ductless glands. The stigmata of ductless gland imbalance which is observed in patients with hay-fever and asthma will be found in no greater proportion than in other pathologic states. Robert Cooke, Sanford, Chandler Walker at Peter Bent Brigham Hospital, and Scheppergrell, the four workers who have reported by far the greatest number of cases, make but very little mention of it.

Treatment Hay-Fever. a. Prophylactic. Immunization beginning six weeks before pollinating season, always starting treatment with next weaker solution to which the patient reacts.

b. Treatment of the attack. In specific sensitization cases much can be accomplished by administering the protein at fault, even during attack.

c. Local treatment. Irrigation, drainage of infected sinuses, etc. correcting any gross pathologic abnormalities, such as infected teeth, tonsils, etc.

Asthma. Desensitization. In the specific sensitization caes this results in cures and marked improvements in the majority of cases. In the non-sensitization cases autogenous vaccines made from sputum and pus from accessory sinuses is of marked benefit.

Conclusions.

1. Of the specificity of protein hay-fever and asthma there is no doubt. (Patient reacting to timothy will not react to horse dander).

We have been able to confirm the work of Walker and Scheppergrell as to types of sensitization and results in the specific sensitization cases in a series of 75 patients.

2. It must be borne in mind that certain pollens are indigenous to certain localities which, when properly classified, and proper test solutions prepared will greatly increase the number of specific cases.

3. Desensitization is based on accurate scientific principles of immunity.

4. Hay-fever asthma should not be treated empirically until it has been tested toward various proteins and found to be a non-sensitization case.

5. Of the multitudinous remedies for asthma, desensitizasion is the ouly procedure which is agreed upon by all observers.

6. Asthma is not a disease, but a term applied to an anaphylactic state, caused by protein irritants. The causes, therefore, will be as many as there are proteins acting as irritants.

7. A careful history is extremely important.

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SIMPLE DRAINAGE DEVICE FOR EMPYEMA.

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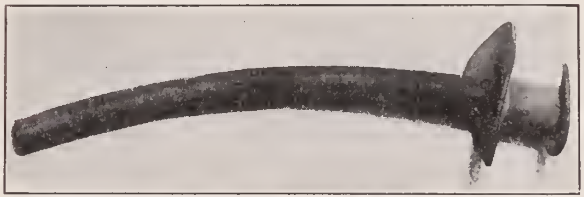
I wish to present what has served me well in a limited number of cases. I have had several of my surgeon friends try it with the same satisfaction, it being a simple, easy means of treating these cases.

While I believe some suction device possibly a little better, this is hard to maintain and not always practical. The danger which is often encountered in relieving a chest of a large quanity of fluid we all well know. It should not be done suddenly and leaving an open drainage tube will sometimes make trouble. The sucking in and out of air, causing a flapping back and forth of the mediastinal wall, is a producer of shock and in my mind contributes largely to many deaths so treated. Both of these evils can be taken care of by this device and after a day or two the negative pressure may be applied if desired. It is a great saving in dressings, as the wound does not have to be touched for days at a time and consequently the patient is kept dry.

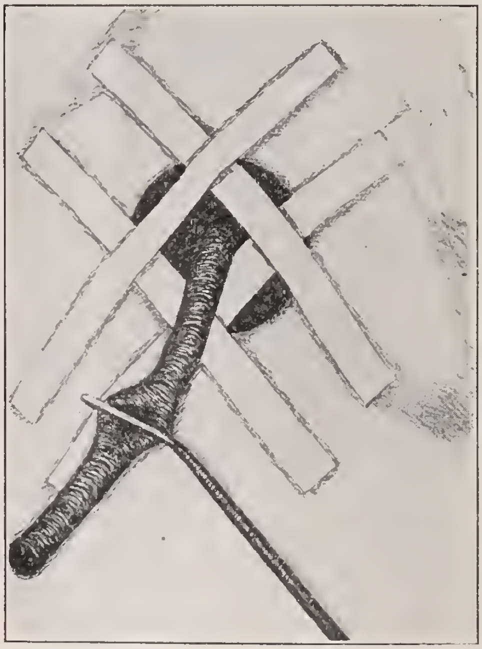


Wilson's Empyema Button with tube attachment.

I use the Wilson empyema drainage tube but insert in its lumen another tube which fits very snugly (air tight), and pass it thru flush with the inner opening. Then it is secured by a couple of interrupted sutures (on one occasion I had a delirious patient pull this tube out before using this precaution), leaving the distal end eight to ten inches long.

I prefer resecting two inches of the ninth rib in a vertical line with the lower end of scapula, for here the muscle covering the chest is thick which is an advantage in helping to make the opening air tight, when closed around the tube. A small opening is made in the pleura. The flow of pus and air is controlled by keeping finger in the opening. Then sew a running suture around pleural margin, Insert tube and tie which will control escape of air and fluid, the distal end of the tube solution it is well to do so with a small catheter being controlled by a forcep. The muscle is snugly apposed, then the skin. The outer flange is strapped down to the chest with adhesive plaster which helps to make the opening secure.

The fluid can be drawn off at any time or in any quantity as one may see fit by removing clamp for a moment with the patient turned on side. My order in these cases is to have this done every two hours. After the second day instill Dakin's solution in the cavity several times each day, which I believe materially helps to clear up the infection. If there should be a bronchial fistula, the Dakin's solution should be omitted. In putting in this inserted thru the tube. Otherwise, if the patient should breath deeply or cough, it would blow the solution out.



Drainage showing tube in position.

Conclusions:

(1) It prevents shock.

(2) A perfect control of the fluid as to time and quantity to be expelled, as well as intake of air.

(3) Opening can be kept air tight. ,

(4) Allows application of medication which may be retained as long as desired.

(5) Great saving in expense of dressings, as well as time of attendants, comfort of patient, keeping wound dry and clean.

(6) Negative pressure may be applied, if desired.

ACTIVE IMMUNIZATION AGAINST DIPHTHERIA.*

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In selecting this subject I realized that I would be obliged to rely very largely upon the investigations, writings and reports of others, as my personal experience with the Schick test and subsequent immunization for diphtheria has been limited; but from personal experience and investigation I have become so firmly convinced that successful and practically permanent immunity from diphtheria can be obtained that I feel impelled to call to the attention of this association the method by which it is produced, coupled with a plea in favor of its adoption in the state of Utah.

Prior to 1893 we had no definite method of combatting diphtheria. With the introduction of Von Behring's antitoxin serum for treatment and passive immunization, such splendid results were obtained that the medical profession hoped the terrors of the disease would ultimately be eliminated, and that with time and increased knowledge of its use diphtheria would no longer be a menace to mankind. A very great reduction in the death rate, as well as morbidity, has taken place since antitoxin came into general use. Statistics show that twenty-five years ago one hundred and fifty out of every one hundred thousand of our population died of diphtheria, whereas at present the death toll is about sixteen out of every one hundred thousand.

For a number of years, however, there has been no appreciable reduction in the death rate and morbidity, notwithstanding the improvement in the use of the serum, and little hope for further improvement is held out in this direction. For as we all know, when a large enough dose of antitoxin is given early in the treatment of diphtheria, the results are remarkable, but how often are cases reported to the physician too late for effectual treatment. The antitoxin can not repair cellular injury and destruction; it can only prevent further poisoning. Physicians, too, neglecting to take cultures in suspected cases, may fail to recognize the disease early enough for successful treatment with the serum.

Where immediate protection is required for individuals not immune, who have been exposed to diphtheria, treatment with antitoxin is indicated, for its immunizing action becomes effective within a few hours after injection. The protection thus afforded, however, is of short duration, rarely lasting more than two weeks. This fact limits its value as a preventive measure against diphtheria over a prolonged period. Children to be carried thru the age of greatest susceptibility would have to receive antitoxin injections every two weeks, which is utterly impracticable.

The spread of diphtheria cannot be prevented by the quarantine of cases and passive immunization of all persons exposed, while numbers of healthy diphtheria bacilli carriers are in our midst. Park estimates that half of the diphtheria cases are persons who, so far as is known, have not come in contact with a case of diphtheria. The number of individuals who harbor the Klebs-Loeffler bacilli in their throats is so great that isolation of these would be impossible, and to detect them thruout the country would necessitate culturing all throats, which is manifestly absurd. Therefore diphtheria, a preventable disease, still remains uncontrolled. Passive immunization as a preventive measure is not sufficient. A practical and efficient method of producing active immunity of long duration is required and this, to be of greatest value, must be produced in early life, when individuals are most susceptible to the disease and the death rate is the highest.

The Schick test has made it possible to detect those susceptible to diphtheria and within the past five years a new method for prevention has passed thru the experimental stage and its value so completely recognized that the city of New York is expending large sums of money, educating the public and urging physicians to protect the population against this disease by means of active immunization with diphtheria toxin-antitoxin. In addition to urging the use of this method by physicians in their private practice the Department of Health, of New York City, stands ready to make the Schick test and administer the toxin-antitoxin to all persons not desiring or feeling able to procure the same from their family physicians. By means of clinical and laboratory methods in testing the blood of diphtheria patients and those exposed to the disease, it was found that only those individuals who had no antitoxin or too minute quantities of it in their blood and tissues contract the disease.

Schick, in 1913, published a paper describing a simple clinical test, whereby the body's antitoxin immunity could be very accurately determined. By means of this test, known as the Schick test, those susceptible to diphtheria can be detected. The reaction to this test depends upon the local action of minute quantities of diphtheria toxin injected intracutaneously.

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*Read before the Twenty-sixth Annual Meeting of Utah State Medical Association, Ogden, Utah, Sept. 7-8, 1920

To avoid errors it is very eseential that toxin of standard strength be used and the technical details be carried out with the greatest accuracy. It is a reliable clinical test and is being used more and more by physicians, altho their number constitutes an extremely small percentage of the medical fraternity. Byard, of New York, in a recent paper in the *Archives of Pediatrics,* makes this statement: "An inquiry made recently of one hundred fifteen physicians in general practice, all of them averaging a considerable number of children patients, gained information that one hundred ten had never performed the Schick test, eighty-six had never observed a Schick reaction and the total active immunizations in older children done by two members of this group totaled five."

For the Schick test the pure diphtheria toxin is used, diluted with physiologic sodium chlorid solution. Schick advised the injection of 1/50 M. L. D, of toxin for a 250 guinea-pig in .1 c.c. normal saline, but the Bureau of Laboratories, of the Department of Health, New York City, prefers 1/50 M. L. D. in .2 c.c., as the chance of error in the amount injected is less and there is a larger area of reaction. The diluted toxin must be kept in a cold place and used within twelve hours, as it deteriorates rather rapidly.

The usual site chosen for the injection is in the upper third of the flexor surface of the forearm, using a 1 c.c. Record syringe with a fine platinum iridium needle, or a 26 gauge one-fourth or one-half inch steel needle. The skin is held taut and the needle inserted about one-fourth of an inch. The oval opening of the needle must be visible thru the upper layer of the skin. A slightly raised white wheal-like area at the point of injection shows that the diluted toxin has been injected properly. The toxin must be injected intracutaneously to prevent rapid absorption and thus preventing the localized irritant action, if no antitoxin is present.

A negative Schick test denotes the presence of antitoxin in the tissues, or an immunity to diphtheria. A positive test indicates the absence of antitoxin in the tissues, or its presence in such minute quantities as are insufficient to positively protect the individual against diphtheria. A positive Schick may be strongly, moderately or faintly positive, depending upon the complete absence of antitoxin or the presence of a very minute or faint trace; 1/30 of a unit antitoxin to each c.c. of blood affords immunity.

A pseudoreaction is due to a hypersusceptibility of the tissue cells to the protein substance of the autolyzed diphtheria bacilli present in the broth used for the test, but shows the presence of antitoxin. A combined reaction represents the positive and pseudoreaction in the same individual. To repeat, a negative Schick reaction and pseudoreaction show immunity.

The interpretation of the test is sometimes puzzling in cases of pseudo and combined reactions, unless one knows the clinical course of these reactions. The positive and combined reactions indicate susceptibility. We must bear this in mind, however, that, altho immunity is nearly always due to the presence of antitoxin, bactericidal substances may be present for protection which we have no way of detecting.

If the test is negative there is, of course, no change in the color of the skin and no infiltration. A positive reaction is characterized by a circumscribed area of redness and slight infiltration, which measures from one to two cm. in diameter. This appears at the site of injection in twenty-four to seventy-two hours, persists from seven to ten days and on fading shows slight scaling and leaves a brownish pigmentation, which at times persists for months. The moderate or faint reactions, showing only amounts of antitoxin, differ from the positive reactions in the lesser degree of redness and infiltration.

The pseudoreaction, seen quite frequently in older children and adults but rarely in infants and young children, appears in from twelve to eighteen hours and reaches its height at the end of twenty-four hours. It appears as a small central area of dusky redness with a surrounding secondary areola which gradually shades off in the surrounding skin and fades in about three to four days, leaving a poorly defined small area of brownish pigmentation and usually no scaling. To prevent confusion in distinguishing the true and false reactions the final observation should not be made before three or four days following the test.

Or better still, to avoid error in reading pseudoreactions, a control test is advisable. In one arm the diphtheria toxin is injected; in the other, at a corresponing site heated toxin is used (the toxin when heated to 75°C. for five minutes destroys the toxin, but does not appreciably affect the autolyzed protein to which the reaction is due). If the two arms show areas of redness and infiltration similar in size and appearance, this is then due to the protein and clearly indicates that the subject is immune. If, on the other hand, the reaction on the arm into which the toxin has been injected is more marked and lasting, it indicates a combined reaction by both the toxin and the protein and proves the subject is not protected by antitoxin.

The reliability of the Schick test has been thoroly established by Drs. Park and Zingher in the scarlet fever pavilion of the Willard-Parker Hospital, of New York City, where for the past five years every patient admitted has had the Schick test applied. Those cases giving positive reactions were immunized with diphtheria antitoxin. Those giving negative reactions were not immunized either passively or actively, but were under careful observation and, altho 15 to 20 per cent became carriers of virulent diphtheria bacilli during their stay in the hospital, no case of clinical diphtheria developed.

The Schick test has shown that the greatest susceptibility to diphtheria is between the ages of six months and five years. Only 15 per cent of infants under three months and 30 per cent under six months give positive reactions. This immunity derived from the mother is only temporary, usually lasting from six to nine months; occasionally it lasts one year and rarely one and one-half years, for, as shown by retests between six months and one year, 60 per cent of infants are susceptible. Between the first and third years 60 per cent give positive reactions; between three and five years, 40 per cent; between five and ten years, 30 per cent; between ten and twenty years, 20 per cent; over twenty years only 12 per cent, showing that with age an increasing proportion of children develop a natural immunity to diphtheria and by the time adult life is reached the majority of individuals have become immune.

Park and Zingher, in testing and retesting thousands of cases during the past five years, found that those who developed *natural immunity* as shown by a negative reaction continued immune from year to year with very few exceptions. Considering the age incidence and increased percentage of negative reactions in older children and adults, they feel that this immunity once developed persists thru life. The exceptions encountered may be due, they think, to the strength of the toxin used or in the time of reading of the reactions, as there were practically no changes from negative to positive reactions when the same observer made the tests.

The fact, then, that individuals who have no natural immunity against diphtheria can be detected by means of the Schick test, also furnishes us with a test which will demonstrate the efficiency of any treatment for immunizing individuals. As measured by the Schick test and subsequent results, the new treatment with toxin-antitoxin has proven to be an effectual method for producing immunization and apparently gives permanent protection.

For a number of years this method has been used in actively immunizing animals. It is utilized in the greater and more rapid production of diphtheria antitoxin in the horse. Theobold Smith and William H. Park advocated the same method for the immunization of children. Von Behring in 1912, however, was the first one to attempt the method in humans. His early reports on the results of the treatment were so encouraging that others were led to follow and extend the work. The work, having passed thru its experimental stage, is today established on a firm basis.

One would naturally think that immunization with diluted pure toxin would give better results but, due to the great toxicity of diphtheria toxin, such minute initial doses can be injected and such gradual increase in dosage made that the process is very slow and even then is not without danger in unskilled hands. Thru a long series of animal experiments and clinical observations it was found that mixtures of toxin-antitoxin could be used which were not poisonous and yet were capable of stimulating the production of antitoxin. The amount that could be safely injected was so very much greater with its consequent increased antitoxin production that it more than offset the results obtained by injection with unchanged toxin.

Various mixtures of toxin-antitoxin were employed during its experimental stage—mixtures over-neutralized, neutralized and slightly toxic. The best results have been obtained by mixtures which are slightly toxic to the guinea pig. Park and Zingher recommend a mixture which contains about 85 per cent of the L. + dose of toxin to each unit of antitoxin.

The usual amount of the mixture injected is 1 c.c. which contains three to five almost neutralized L. x doses of toxin. These mixtures are tested for their harmlessness and there is absolutely no danger in their use. The injections are given subcutaneously, preferably in the arm just below the insertion of the deltoid. At the present time two or far better three injections of 1 c.c. each are recommended to be given at weekly intervals, as far better results are obtained than when only one injection is given, as the production of antitoxin is considerably increased by the other injections. It would of course simplify the treatment considerably if only one injection were needed, and with this aim in view further work is being carried on by Park and Zingher to improve the method if possible.

Although there is absolutely no danger in the treatment with toxin-antitoxin, we may have, however, in about 30 per cent of grown up children and adults local reactions and constitutional disturbances, consisting of redness, swelling and tenderness of the arm, headache and elevation of temperature 101°-103°. The symptoms usually appear in about twenty-four hours but do not last more than a day or two. In infants and young children there is seldom any disturbance. This reaction is due to the protein substance in the mixture, partly derived from the broth in which the bacilli were grown and partly from the broken down bacilli. The value of this treatment with toxin-antitoxin must be measured by the immunity produced in susceptible individuals, and also by the duration of this protective measure.

Practically all of this work has been carried on in our country under the direction of Dr. Park, director of the Research Laboratory, New York City Health Department. Dr. Zingher, assistant director, is especially prominent as a worker in this field.

The immunity produced by toxin-antitoxin has been found to last for about five years and Dr. Park believes that it gives life long protection. No authentic case of diphtheria has been contracted by a subject who has shown a negative Schick test subsequent to treatment.

Further evidence as to the efficacy of the toxin-antitoxin treatment for the prevention of diphtheria is furnished by Blum, in the July number of the *American Journal of Diseases of Children.* In the Home for Hebrew Infants, in New York City, he states that during the past five years 1,076 children between the ages of one month and six years have had the Schick test applied and 37 per cent were found to give positive reactions; these susceptibles received toxin-antitoxin treatment. Notwithstanding the fact that in 1915 diphtheria was endemic in this institution, no case has developed since the use of the Schick test and the toxin-antitoxin treatment.

My own experience with the Schick test and toxin-antitoxin treatment, as I stated in the beginning has been limited. At the Summer Branch of the New York City Babies' Hospital, at Oceanic, N. J., two years ago, I had unusually good opportunities to study the clinical reactions following the Schick test in about 165 cases and to observe the direct effects of treatment with toxin-antitoxin in about 75 cases, as I had the children under daily observation. Local reactions and constitutional disturbances were noted in a few of the older children, but these were not alarming and passed off in twenty-four to thirty-six hours. Unfortunately I have no definite data to give as to the persistence of the immunity produced except in a few of the subjects treated, as I left New York shortly afterwards, but from the cases retested by other physicians the immunization has continued.

With all the information at hand, I feel that we as physicians will be shirking our duty, if we do not take measures to enlighten the public as to the value of the treatment with toxin-antitoxin for the prevention of diphtheria. To a very great extent the family physician must assume the responsibility because of his more intimate relation with the parents and children in the home. Moreover, as infants and children of preschool age, the age of greatest susceptibility, are almost entirely under his care, his attitude in the matter is of the utmost importance. The various boards of education and health departments can exercise a very great influence in this direction, and we should, therefore, not only recommend but urge upon the members of the medical profession and the various school and health boards of Utah the inauguartion of an active campaign for the ultimate elimination of this disease.

GROWTH OF THE LABORATORY OF THE WASHINGTON STATE BOARD OF HEALTH.

Mae E. Larkin, B. A.
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SEATTLE, WASH.

The data included in this paper are abstracted from the 1920 annual report of the laboratory which was submitted to Dr. John B. Anderson. State Commissioner of Health, Jan. 4, 1921. During the year 1920 the progress in laboratory activities was truly phenomenal. It seemed that it might be of interest to trace briefly the history of laboratory work in connection with the Washington State Board of Health.

HISTORY OF THE WASHINGTON STATE BOARD OF HEALTH LABORATORY.

The annual reports previous to 1907 indicate that laboratory investigations were undertaken at various times under emergency conditions. On Sept. 1, 1907, a bacteriologic laboratory, made possible thru legislative appropriation, was opened in Seattle. This laboratory was in charge of Dr. Rose A. Bebb who had done much of the laboratory and epidemiologic work for the State Board of Health previous to the establishment of the laboratory. From the year 1908 until 1914 the annual totals of laboratory examinations varied between about 400 and 800, a total of 825 having been reached in 1913. The largest numbers of examinations were for the diagnosis of diphtheria, tuberculosis, and typhoid fever and the bacteriologic examination of samples of water. The biennial reports bear evidence of much earnest, enthusiastic work during these early years of the laboratory's history, and one who is interested cannot read them without a feeling of admiration and commendation for those whose names are linked with the establishment of public health laboratory work in the State of Washington.

The years 1914 to 1917 inclusive may be said to mark another epoch in the laboratory's history. The annual numbers of examinations jumped to above 2000, reaching a total of 3,084 in 1917. This was due largely to an increase in diphtheria specimens and water samples. In 1915 an important change in laboratory administration was inaugurated. The services of a full-time bacteriologist were secured. This was an advancement over the arrangement of having a practising physician who devoted part of his time to the laboratory work. From 1915 the laboratory continued in much the same way until its reorganization on modern lines in 1918.

It should be mentioned at this point that the State Board of Health owes a lasting debt of gratitude to coworkers in the medical field who so generously offered professional courtesies at a time when the laboratory was unable to carry on certain branches of the work which were later assumed as routine responsibilities. For several months complement fixation tests were performed in the Peterkin Memorial Laboratory, thru the courtesy of Dr. G. Sherman Peterkin. Examinations for rabies were made at the laboratory of the Seattle Department of Health. The latter laboratory also furnished without charge much of the Loeffler media used in taking throat cultures for diphtheria. The spirit of cooperation which was shown by Dr. Peterkin, Dr. Simpson of the City Laboratory, Dr. West who was in charge of the city laboratory during the absence of Dr. Simpson on war service, and by their coworkers, has been of inestimable assistance and support in carrying on the work of the State Board of Health Laboratory in times of emergency.

REORGANIZATION IN 1918.

In 1918 the laboratory underwent an entire reorganization. Laboratory procedures along all lines were brought up to date by the introduction of the latest standard methods. Methods of reporting were entirely changed. A system of making a carbon copy of each report to be filed as a permanent record was established. Outfits for the collection of material for laboratory examination, which were in conformance with the United States Postal regulations for shipping infectious material, were assembled for distribution to physicians and health officers upon request. New laboratory rulings in regard to the collection of material were necessary in many cases. This was notably true in regard to the collection of water samples in order to conform to established standards of water analysis.

The introduction of the complement fixation test for the diagnosis of syphilis was made possible thru funds which resulted from the activities of the United States Public Health Service, cooperating with the State Boards of Health in the campaign against venereal diseases. Another important change was the preparation of typhoid-paratyphoid vaccine instead of straight typhoid which had formerly been prepared in the laboratory. This entailed much more labor from the laboratory standpoint but causes very little, if any, more reaction in the patient. Its great advantage lies in the fact that with the same number of injections and the same amount of material the recipient is protected against paratyphoid as well as typhoid fever.

The space occupied by the laboratory in connection with the executive offices of the State Board of Health in the Henry Building was found entirely inadequate to keep pace with the progress of the work. Thru the courtesy of the President and the Board of Regents of the University of Washington the Laboratory in August, 1918, was moved to 310 Science Hall on the University Campus, where it has been located since.

It will be recognized readily that all this reorganization took place at the expense of much time and labor. Owing to war conditions and the resultant scarcity of laboratory equipment, much of the material necessary which must be shipped entirely across the continent was long delayed. All these changes account for the fact that there was no material increase in the number of specimens examined during the year 1918. The number of examinations of water samples suffered a decrease, due to the fact that rulings were made that samples must be collected in outfits sent out from the laboratory. Thus many samples received were discarded and have not been included.

THE YEAR 1919.

During 1919 the laboratory's progress was most gratifying. The demand for venereal examinations increased so remarkably that the specimens for the syphilis complement fixation test totaled 1827 and the examinations for gonorrhea reached 829. The grand total of examinations reached 6,965, an increase of nearly 3,900 above the largest number of examinations ever made in a single year before. The increase along other lines was marked, altho of course not so startling as in the volume of the examinations for syphilis and gonorrhea.

THE YEAR 1920.

In order to compare the progress of the laboratory in numbers of annual examinations, a chart has been prepared giving comparative totals for the years 1907-1920 (fig. 1). The small table below will show at a glance the enormous strides which have been made in the year 1920 over 1919.

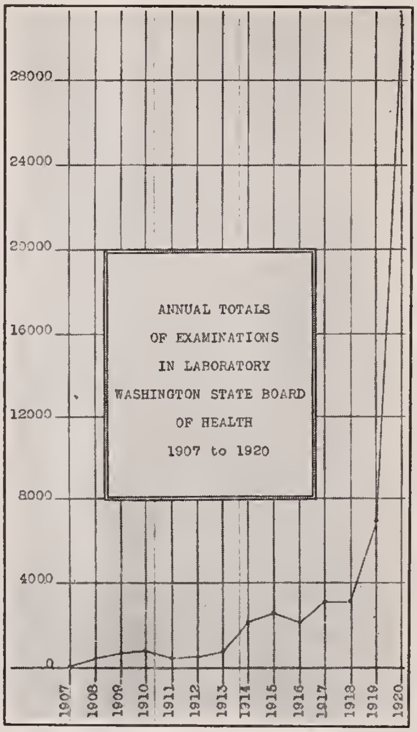

Fig. 1

TABLE SHOWING INCREASE IN NUMBERS OF DIAGNOSTIC AND SANITARY EXAMINATIONS AND PERCENTAGES OF INCREASE, YEAR 1920 OVER 1919.

	1919	1920	Increase	Percentage Increase
Diphtheria	915	9733	8818	963
Tuberculosis	539	1743	1204	223
Syphilis	3848	14708	10860	282
Typhoid	283	387	104	36
Gonorrhea	829	899	70	8
Miscellaneous	106	2761	2655	250
Total Diag.	6520	30231	23711	363
Water	445	848	403	90
Grand Total	6965	31079	24114	346

COMPARISON OF THE 1920 TOTALS OF DIAGNOSTIC AND SANITARY EXAMINATIONS, LABORATORY WASHINGTON STATE BOARD OF HEALTH, WITH THE 1919 TOTALS OF THE DIVISION OF LABORATORIES AND RESEARCH, NEW YORK STATE DEPARTMENT OF HEALTH

We have felt that it might be of interest to compare our 1920 totals of diagnostic and sanitary examinations with the totals of such examinations made by the Division of Laboratories and Research, New York State Department of Health, in 1919 and submitted by Dr. A. B. Wadsworth, Director of the Division, in his annual report to the New York State Commissioner of Health. We have chosen New York State Laboratories as a basis of comparison, first, because they are recognized as the peer of any public health laboratories in the world and secondly, because the laboratory of the Washington State Board of Health, since its reorganization in 1918, has been organized as far as possible along the same lines as the New York State Laboratories and has introduced largely the standard diagnostic procedures as followed in these laboratories.

DIAGNOSTIC AND SANITARY EXAMINATIONS.

*Included under miscellaneous in our report.

	New York State 1919.	Washington 1920.
Diphtheria	36 307	9,733
Tuberculosis	7,186	1,743
Typhoid	2,424	387
Syphilis	68,359	14,708
Gonorrhea	2,113	899
Miscellaneous	1,382	2,761
*Pneumonia	**810**	
*Feces (Typhoid)	1,341	
Water Chemical	455	
Water Bacteriologic	911	848
Total	121,288	31,079

As is apparent from the table (fig 2), the number of examinations made in the Washington State Board of Health Laboratory is more than one-fourth of the number made in the New York State Laboratories. The population of Washington is slightly less than one-eighth that of New York. In New York state the work is in charge of a force of highly specialized, technically trained workers and their assistants. Here in Washington the work has been performed with one regular assistant who has received her practical training during about one and one-half years in the laboratory, one part time assistant for a portion of the year and an additional temporary assistant in cases of special stress.

SERVICE FOR PUBLIC INSTITUTIONS IN THE STATE OF WASHINGTON.

Our laboratory has been able to be of considerable service to the public institutions of the State of Washington. During the year 1920, examinations totaling 8,792 were made for the following public institutions: Western State Hospital, Fort Steilacoom, Eastern State Hospital and State Custodial School, Medical Lake; State Penitentiary, Walla Walla; State School for Girls, Grand Mound; State Reformatory, Monroe; Women's Industrial Home and Clinic, Medical Lake; Mt. View Sanatorium, Lake View; Edgecliff Sanatorium, Spokane; U. S. Marine Hospital, Port Townsend; U. S Penitentiary, McNeil Island; U. S. P. H. S. Hospital No. 59, Tacoma.

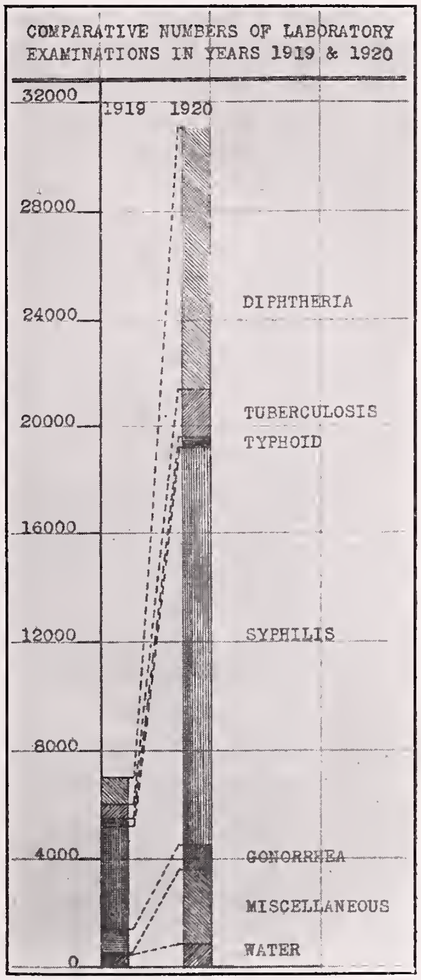

Fig. 2

The list includes examinations for diphtheria, tuberculosis, typhoid fever, gonorrhea, syphilis, miscellaneous spinal fluid and feces examinations and water analyses. It was estimated that the services performed for the above-mentioned institutions would have cost a sum of $22,790.00 at ordinary commercial rates. It is thus not difficult to realize that the laboratory work has effected a considerable saving of expense in connection with the institutions served.

Surveys have been made to determine the percentage of syphilis among the inmates of the following institutions: State Penitentiary, Walla Walla; the State Reformatory, Monroe; and the Western State Hospital, Fort Steilacoom. These surveys revealed the existence of 13.5 per cent of syphilitic infection among the inmates of the State Penitentiary at Walla Walla and of 8 per cent among the inmates of the State Reformatory at Monroe.

At the Western State Hospital for the Insane an extensive investigation was undertaken to determine the incidence of syphilis among the patients, as revealed by a hospital census and also the incidence among admissions. Complement fixation tests of blood and spinal fluid and colloidal gold and globulin tests on spinal fluids were made wherever possible. The cell counts on spinal fluids were included in 346 instances. The results of the investigation have appeared in an article written by Dr. Wm. N. Keller, Superintendent of the institution and published in an earlier number of this journal.*

DISTRIBUTION OF SUPPLIES.

Aside from the work which has been purely diagnostic and analytical the laboratory has prepared and distributed outfits for the collection of material. The increase in this service is illustrated by a comparative table of supplies distributed during the years 1918, 1919 and 1920.

TABLE SHOWING SUPPLIES DISTRIBUTED DURING THE YEARS, 1918, 1919 & 1920.

	1918	1919	1920
Diphtheria	934	2012	7950
Tuberculosis	112	518	947
Typhoid	209	343	259
Gonorrhea	41	356	473
Syphilis	212	1501	5982
Water	618	608	1048
Total	2126	5338	16659

TYPHOID PARATYPHOID VACCINE.

Another most important activity of the laboratory has been the preparation and distribution of typhoid-paratyphoid vaccine. During the years 1919 and 1920 this vaccine, sometimes called triple typhoid vaccine, giving protection against paratyphoid as well as typhoid fever, has been distributed. This vaccine is prepared in accordance with the methods in use in the Hygienic Laboratory, at Washington, D. C. Thus a product of high standard, made according to the most advanced scientific knowledge of vaccine preparation is available for free distribution to the physicians and health officials of the state. During the year 1920 sufficient of this vaccine to immunize 2335 persons was distributed.

AIMS FOR THE FUTURE.

Let us turn our attention to our aims and desires for the future. According to our conceptions of what the modern public health laboratory should accomplish, its work lies along three main lines: (1) diagnosis and analysis, including the distribution of containers for the collection of material; (2) preparation of prophylactic and therapeutic products or biologicals; and (3) investigational and research activities.

As we have already tried to demonstrate, much has been accomplished along the lines of diagnostic and analytical work. There has, however, been considerable demand for chemical examinations and pathologic tissue work, for which the laboratory has had neither funds nor equipment. There may be a question as to the advisibility of instituting certain lines of more purely clinical activities in the public health laboratory. However, it probably would be conceded generally that the State Board of Health should be prepared to undertake chemical investigations which are not provided for by other state departments, where these have a direct bearing on public health. The only prophylactic prepared and distributed by the department has been the typhoid-paratyphoid vaccine. This branch of the work could be increased enormously.

We believe that there is one phase of the work along the lines of immunization which merits immediate attention. This is the encouragement of the use of the Schick test to determine susceptibility to diphtheria among children closely associated, as in schools and institutions. The laboratory should be prepared to distribute the necessary materials for the performance of this test and perhaps also for the toxin-antitoxin immunization of non-immunes which is largely practiced in the control of diphtheria.

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*Vol. XX No. 2, page 42.

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EDITORIAL

PROGRAM FOR THE TRISTATE MEETING.

Arrangements are being made for a very attractive and entertaining meeting in Portland the latter part of June, when the associations of Washington, Oregon and Idaho will again assemble for a tristate meeting. An especially interesting program of papers has been assured. The following well-known men have promised to attend. Dr. Dean Lewis, of Chicago, will present the subject of ununited fractures. Dr. George V. I. Brown, of Milwaukee, will present a paper on plastic surgery. Dr. Vilray P. Blair, of St. Lewis, will have a paper on Plastic Repair of Acquired Defects and Deformities of the Face. Dr. Alfred A. Strauss, of Chicago, will read a paper on Surgical Treatment of Gastric and Duodenal Ulcer, also one on Treatment of Chronic Osteomyelitis by Aluminum Potassium Nitrate. Dr. Brasch, of Rochester, will have a paper on some genitourinary subject. Dr. Robert E. Farr will present the subject of local anesthesia, in which he is an expert. The subject of medical organizations will be considered by a representative of the American Medical Association, probably by Dr. Frederick Green. Mr. Sullivan, of the League for the Conservation of Public Health, will present some phase of the league's work. Dr. Musgrave, of San Francisco, will speak on the subject of hospital standardization. A representative of the American College of Surgeons will also speak on this subject. Dr. Sharp, of New York, will read a paper on brain surgery. This is a preliminary program, to which other papers will later be added. More details of the meeting will appear in the issues of the following months.

DRUGLESS HEALERS AND HOSPITALS.

An interesting hospital agitation has recently been excited in Spokane on the part of the drugless healers. Certain members of the profession of that city seem to have started the disturbance, who received surgical cases from chiropractors and invited them to be present during the operative procedures. Thereupon the visitors demanded that they be accorded accommodations for their patients, the same as all other doctors, which privilege was promptly denied them. This situation was nuts for certain newspapers of that city, which always accept the opportunity for taking a fall out of the medical men. The drugless healers protested loudly, proclaiming the injustice to the suffering public, whose unfortunate sick were being deprived of the privilege of receiving drugless salvation in hospitals of the city.

What a laughable and farcical situation is here presented. The drugless healers, to whom medicines and surgery are anathema, are raising a noisy rumpus because hospitals, founded and maintained on this sort of treatment, decline to alter their rules in favor of certain practitioners who deny and repudiate the efficacy of such methods of treatment. The basis of modern standardization of hospitals is an insistence on scientific knowledge in medical and surgical principles on the part of those who practice in our hospitals. This fact should be widely proclaimed, when these half-baked and uneducated drugless practitioners shout from the house tops that they are being discriminated against. There is only one condition to be demanded of all who treat the sick; that all should have an equal scientific education in the accepted basic principles concerning the human body in health and disease. If these facts are continually presented to the public, such outbursts as have recently occurred in Spokane will be estimated at their true value.

GERMAN NERVE.

The newspapers inform us that the Germans refuse to pay the sums of money for reparation to France and the Allies, as ordered by the latter, on the ground that the government is so poverty stricken that these payments would bankrupt it. At the same time it is stated that industries are running on a prewar basis and business generally is progressing in a normal manner. It is evident that the thrifty German spirit proposes to take advantage of any weakness or leniency on the part of the victors. This grasping spirit is evidenced even in medical matters.

We have had correspondence with an Eastern dealer in foreign books, thru whom it was desired to subscribe to the Wiener and the Berliner klinische Wochenschrift. This book dealer advises against subscribing to either at the present time. He states that the Germans discriminate in prices to all outsiders. For instance, for a periodical costing in Germany sixteen marks, the publishers have the nerve to ask 850 marks from the American purchaser, this to be paid in advance. The excuse for this discrimination is "equalization of exchange", and for this purpose he adds 750 per cent to the price of the publication. In one case a customer was willing to pay this profiteering price but, after the German publisher had received the sum demanded, he sent an additional bill. The customer refusing to pay any more, the thrifty German retained the money already sent him without furnishing a single copy of the publication in question. Such is an example of the German nerve in the disguise of poverty and oppression by the conquerors.

CHIROPRACTIC PROPAGANDA.

Probably most of our readers are familiar with the case of epidemic encephalitis in the person of Miriam Rubin of Waukegan, Ill., which was published in detail in a recent issue of the *Journal of the American Medical Association.* The reason for its publication was the part played in the treatment by a chiropractor. The phaze of the disease exhibited in this girl was the excitable form, in which she talked and moved her muscles incessantly. After continuing for a certain time without improvement, a period of remission coincided with brief treatment by a chiropractor. The followers of this cult widely proclaimed the cure of the case after failure under medical treatment, neglecting, however, to mention a subsequent relapse and continuation of more unfavorable symptoms.

The excuse for mentioning the case at this time is the fact that the chiropractic propaganda has filled advertising pages in papers all over the United States, proclaiming this wonderful cure as evidence of chiropractic superiority in treatment of disease. This advertisement appeared quite generally in the papers of the Pacific Northwest. Letters were sent to many of these papers, calling attention to the misinformation contained in this advertisement, due to the fact that the ultimate result in the case had not been presented to their readers. In a few instances this explanatory letter was published, but probably in a majority of cases the untruthful propaganda has remained uncorrected before the public. If physicians in the different states would take sufficient interest in such misleading announcements to communicate with the editors of their local papers, with a request that they correct this and similar false information presented to their readers, there might be some prospect of counteracting such untruths that are so frequently offered to the readers of the secular press.

MEDICAL LEGISLATION IN WASHINGTON.

Several brisk contests over measures affecting the public health were held in the Washington legislature which ended its session March 10. The Bassett antivivisection bill, which was designed to prohibit experimentation upon live animals in any school supported wholly or in part by public funds, was defeated in committee. The dental hygienists bill, which proposed to license unqualified girls to practice limited dentistry, was defeated twice in the house but so insistent were its supporters that it became necessary in the closing hours of the session to postpone indefinitely the dental code, to which it had been added in a new form as an amendment. The school clinic bill, which gave the directors of school districts of the first class authority to operate a clinic for the poor children of their districts, succumbed to a combined attack of the christian scientists and a group which sought to lower taxes by reducing various forms of governmental activities.

The row between the chiropractors and the sanipractors engaged the attention of the lawmakers during most of the session. As originally drafted the bill had several meritorious features. It proposed to cancel all the sanipractic licenses, to raise the educational requirements and to forbid all drugless healers the use of the title doctor. Its proponents finally agreed to amendments which destroyed the best features of the bill and provided only for the elimination of the name "sanipractic". As this was designed solely to prevent confusion between "chiropractors" and "sanipractors", there was little left to interest the friends of scientific medicine. There was little reason to get excited over a choice of names. The bill was defeated with the result that the war between two schools of drugless healing continues full blast.

One provision of the bill amending the industrial insurance act has a special interest for the medical profession. At present osteopaths who are licensed to do surgery are not permitted to do work for the state, altho the opinion of the attorney general favors such employment. The medical adviser of the insurance commission has ruled against the osteopaths and has thereby invited a lawsuit. The amendment adopted at the last session of the legislature requires that the surgery done for the injured workmen must conform to proper standards and gives the medical adviser authority to judge of its competency. The effect will be to close the doors to osteopaths.

The christian scientists found powerful support in Senator Howard Taylor, president pro tem of the senate and the leader of the organization. Senator Taylor was strategically placed and his influence on every bill was exerted to bring support to the christian science measure which exempts their children from physical examination in schools. Several amendments were forced thru which relieve in a large measure the menacing features of the bill. When the school doctor or nurses believe "in good faith" that a child is suffering from a contagious or infectious disease, the child may be examined and sent home. Also provision is made for excluding pupils who have been exposed to contagion or who may have a communicable disease. The importance of the measure is so great that the League for the Conservation of Public Health is seriously considering invoking the referendum. The effect would be to postpone the operation of the law until the people may vote on it next year. On a question vitally affecting the health of the state it is generally agreed that the people themselves should register their will. With opportunity to study the measure it is unlikely that a majority vote would be cast for it.

The enactment of the civil administrative code abolishes all examining boards and hereafter their duties and powers will be vested in a director of licenses. Instead of a "board", a "committee" named by the governor will examine candidates for licenses. The laws governing the issuance of licenses, however, remain unchanged.

MEDICAL NOTES

OREGON.

Disappearance of Physician. Last month Dr. J. D. Fenton, well-known physician of Portland, disappeared from his home, causing much anxiety as to his fate. He had been in ill health for quite a period and had given up practice for some months. He has been a leading physician for many years and his many friends have hopes that no ill might befall him.

Central Willamette Medical Association held a meeting at Eugene, March 3, about fifty physicians being present. A banquet occured in connection with it. Dr. M. Bisallion, of Portland, gave an illustrated address on the subject of tuberculosis. Dr. Fred Thompson, of the Industrial Accident Commission, gave an address on the work of his department.

Dr. Joseph McConnell has located for practice at Astoria. He served for five years in the army, having at the time of Pershing's invasion of Mexico. His last service was at Fort Stevens, Ore.

Exalted Ruler of Elks. Dr. Roy D. Byrd, of Salem, was recently elected exalted ruler of the Elk's lodge of that city.

Dr. L. H. Mott, formerly of the U. S. Army Medical Corps, has located for practice at Astoria.

Elected City Physician. Last month Dr. Nellie S. Vernon was elected city physician of Astoria.

WASHINGTON.

Director of Health. The new administrative code abolished the State Board of Health and with it the commissioner of health. In place of this it provides for a Director of Health, who will have charge of the health matters of the state. Gov. Hart has appointed Dr. Paul A. Turner, of Seattle, to this office.

Investigation of Hospital. The Greys Harbor tuberculosis hospital, which is about to be opened at Elma, was recently ordered suspended by the county commissioners on account of the expense of maintainence. Last month a committee was appointed by the Aberdeen Chamber of Commerce to investigate the institution and make recommendations to the commissioners relative to its continuance.

Hosptal to be Established. After a long agitation the bill passed the U. S. Congress establishing a government hospital at Fort Walla Walla. The expenditure of nearly half a million dollars will be necessary to properly prepare the grounds. The existing buildings at the fort will be remodeled for hospital purposes.

Hospital Quarantined. Mt. Carmel Hospital, of Colville, was last month quarantined for a time on account of diphtheria in the institution. It was later fumigated and reopened.

New Hospital Opened. Drs. Owen Taylor and M. J. Lacey have recently opened a new hospital at Auburn. It will supply hospital needs of a number of towns in the White river valley.

A Centenarian Physician. Dr. Lemuel I. North, of Tacoma, recently celebrated his one hundredth birthday, being born in Lee County, Ia., in 1821. In spite of his years he has never given up practice, and still receives patients. Hence he claims to be the oldest practicing physician in the U. S.

Medical Missionary. Dr. Harriett J. Clark, of Seattle, will soon go to India as a medical missionary, under the auspices of the Congregational missionary board. She will be located in the hospital at Ahmednuggar. During the war and after the armistice she served under the Red Cross in Servia and Greece.

Returned to Practice. Dr. John B. Anderson, formerly city health officer of Spokane, who has recently served as state commissioner of health, was legislated out of office by the passage of the administrative code. He will resume private practice.

Appointed Health Officer. Dr. V. J. Capron, of Friday Harbor, who has been connected with the State Board of Health, has returned home to resume practice. Last month he was appointed health officer of San Juan county.

Dr. W. R. Simmons, who practiced for many years at Port Townsend and recently was in Seattle, has gone to Indiana to take charge of a Seventh Day Adventist Sanatorium.

Doctor Wanted. The town of Prescott is without a physician since the death of Dr. Stubbs. It is said there is an excellent opportunity for some man to establish a practice.

Dr. G. H. Mohr has located in Seattle for practice. He is a native of Seattle and has recently graduated in medicine.

Appointed County Physician. Dr. O. A. Thomle, of Everett, has been appointed county physician for Snohomish county.

In Charge of Sanatorium. Dr. L. G. Woodford, of Everett, has been reappointed physician in charge of Aldercrest tuberculosis sanatorium.

Dr. C. D. Morehouse has recently moved from Waukon, Ia., to Everett, where he will settle for practice. He served in the army for eighteen months with the rank of Captain.

Dr. R. E. Smith, recently of Seattle, has located for practice at Onalaska.

Dr. W. S. Bardwell, formerly of Spokane, has located for practice at Newport.

Dr. H. W. Newell, recently of Mossyrock, has located for practice at Toledo.

IDAHO.

Dr. W. L. Bach, formerly of Denver, Colo., has located for practice at Bancroft. Recently he has been surgeon for the Onalaska Lumber Company of Washington.

Appointed to Medical Board. Dr. F. G. Wendle, Sandpoint, has been appointed, thru the office of the Secretary of State, to the state board of medical examiners and the medical advisory board.

New Hospital Started. It has been finally decided to build the tuberculosis sanatorium at Payette. The ground is being cleared and prepared for the hospital buildings. The location is near the foothills, two miles north of Payette.

Dr. J. F. Gist, of Nez Perce, has moved to Spokane, where he will engage in practice.

Dr. J. F. Darby, of Craigmont, has located for practice at Nez Perce.

OBITUARIES.

Dr. Chas. E. Case died at Tacoma, March 18, after an illness of about a year. He was born in California in 1853. He graduated from the California Medical College at Oakland. He was demonstrator of anatomy at that institution. In 1882 he located for practice in Tacoma. In 1885 he attended the College of Physicians and Surgeons, from which he graduated in 1886; after which he returned to Tacoma and practiced there to the time of his death.

Dr. Sylvester Wilkins died at Seattle, March 10, at the age of 84 years. He was born in Indiana. He practiced for many years in Kansas. He retired from practice about fifteen years ago and located in Seattle. Since then he has lived part of the time in Tacoma.

Dr. Chas. L. Stubbs, of Prescott, Wash., died at Walla Walla hospital, Feb. 19, following an operation the week before. He was born at Waterloo, Ia., in 1861. He located at Waitsburg in 1891. Four years later he returned to Iowa and lived there until 1906, when he located at Prescott.

REPORTS OF SOCIETY MEETINGS

OREGON.

KLAMATH AND LAKE COUNTIES SOCIETY.

Pres., A. A. Soule, M. D.; Secty., H. D. Stewart, M. D.

The Klamath and Lake County Medical Society held its regular meeting in Klamath Falls, Ore., March 4, 1921. Officers were elected for the ensuing year as follows: Dr. A. A. Soule, President; Dr. C. V. Fisher, Vice president; Dr. H. D. Stewart, Secretary-Treasurer.

Dr. Stewart, recently appointed health officer announced the preparation of a sanitary code which will be presented for consideration at the next meeting of the society.

Secretary McInturff, of the Oregon League for the Conservation of Public Health, will be present at the forthcoming meeting and may organize a league in this city. The league is not for the members of the medical profession alone, but for educators, public officials and others as well.

Dr. W. A. Leonard invited the members of the society to attend the banquet to be given at the White Pelican Hotel, March 7, in honor of Dr. Fixott, who will speak in the interests of better dentistry at the instance of the state board of dental examiners.

Members present were Drs. Merryman, Johnson, Hunt, Truax, Massey, Fisher, Gass, Stewart and Soule.

WASHINGTON

KING COUNTY MEDICAL SOCIETY.

Pres. H. G. Lazelle, M. D., Secty., B. T. King, M. D.

The regular meeting of King County Medical Society was held in the Masonic Club Rooms, Seattle, Wash., March 7, 1921, with Dr. Lazelle in the chair.

Minutes of the previous meeting were read and approved.

Dr. M. N. Garhart showed x-ray plates made by Potter-Buckey diaphragm, contrasting the clearness as compared with the usual method.

Papers

Symposium on Pneumonia. Dr. C. R. Castlen read a paper on the etiology of pneumonia. He discussed the types of pneumonia, giving types of organisms ordinarily found and their predisposing causes. He discussed the relative frequency of the four types of pneumococcus. The pathology of the various types was given in sequence. Discussion by Drs. Griswold and C. F. Davidson.

Dr. C. S. Leede considered the clinical aspects and treatment. He recommended camphorated oil and pneumonia jackets, cold flagellations in high temperature, wet pack to chest, mustard plasters and strapping. He opposed open air treatment except in lobar types. Digitalis is most important in moderate sized doses for the heart. Camphor is beneficial. Serum treatment has given good results in type. Discussion by Dr. Miller.

Dr. Frank Horsfall reported a case of tuberculosis of the spleen which weighed 10.5 lbs. The wound broke open on seventh day and intestines were forced out into dressings. Discussion by Drs. Mosiman and Slyfield.

A letter from Dr. A. E. Burns was read as to changing the constitution and by-laws of the society to conform to those of the State Medical Association and other county societies. It was voted that the President appoint a committee to revise constitution and by-laws.

The second regular meeting of the society was held March 21 with Dr. Lazelle presiding.

Papers

The Pathology of Intestinal Obstruction. By C. E. Hagyard. He discussed splanchnic paralysis, bacterial decomposition of proteins with formation of proteins, and dehydration. It is claimed that death is due to a toxemia. Toxines get into circulation thru blood vessels and lymphatics. Discussion by Dr. Kelton.

The Etiology of Intestinal Obstruction. By H. J. Knott. He divided etiology into causes inside bowel, in wall of bowel, outside bowel. He mentioned a great number of etiologic factors and mechanical means by which obstruction takes place. Discusion by Drs. Coe and Speidel.

The Symptomotology and Treatment of Intestinal Obstruction. By Dr. Harry Shaw. He urged early operation. He deplored the use of cathartics and condemned the use of morphine. Prolonged exploration is dangerous. Palpate and visualize cecum. Gentle manipulation is of the greatest importance. He described technic of enterostomy. Discussion by Drs. Loe, Mason, Kelton, Horsfall and Jones.

The application of Dr. H. A. Schumacher was read. Dr. D. A. Seibert was elected to membership.

SKAGIT COUNTY MEDICAL SOCIETY.

Pres., W. L. Jackson, M. D.; Secty., J. W. Straight.

Skagit County Medical Society held a meeting at Mount Vernon, Wash., Feb. 21, 1921. The following officers were elected for the ensuing year: President, Dr. W. L. Jackson, Burlington; Vice Pres., Dr. S. G. Brooks, Anacortes; Sec.-Treas., Dr. J. W. Straight, Mount Vernon; Delegate to State Association, Dr. Geo. Shorkley, Mount Vernon. Alternate, Dr. A. Shaw, Anacortes; Censors, Three year term, Dr. R. J. Cassel, Mount Vernon; two year term, Dr. W. N. Hunt, Burlington; one year term, Dr. L. Cook, Anacortes.

Dr. C. L. Hawk, of Mount Vernon, was elected to membership.

Drs. D'Arc and Cessel gave a review of the surgical work done at the Mount Vernon General Hospital during the past fifteen months and Dr. Straight read a paper on strabismus.

Following the meeting the society enjoyed a banquet at the home of Dr. and Mrs. A. J. Osterman, whose cordial hospitality provided a very substantial climax to an enjoyable and profitable evening.

SPOKANE COUNTY MEDICAL SOCIETY.

Pres. J. D. Windell, M. D.; Secty., O. M. Rott, M. D.

The regular meeting of the Spokane County Medical Society was held March 10, 1921, at Spokane, Wash., President Windell in the chair.

Papers

A Symposium on Gastric and Duodenal Ulcers was presented. Dr. A. A. Matthews discussed the subject from the surgical point of view; Dr. Epplen presented the medical aspect, and Dr. McCarty gave a talk from the roentgenologic point of view. These papers were discussed by Drs. Suttner, Ahlquist, Corkery, A. T. R. Cunningham, Stier and Aspray.

There were two points of view relative to the proper treatment of these ulcers. The surgeons favored surgical treatment. It was conceded it would be no more than fair to subject all cases to one trial medically, tho there was no doubt in the end surgery would have to be called to service. The gastric ulcer should be treated surgically earlier than the duodenal because of the tendency for the former to be the starting point of carcinoma.

The second regular meeting of the society was held March 24, Dr. Windell presiding.

Common Sense vs. Theory in the Use of the Wassermann Test. By Dr. Peterkin, of Seattle. He attempted to show how a quantitative Wassermann can be made and how it should be interpreted. The mere presence of a + or ++++ does not tell the entire story. Of more significance is the answer to the question, "What can be done with it." The positive Wassermann is due to the waste products in the blood and the greater the latter, the more positive the Wassermann.

Discussed by Drs. Patton, Ransom, Stier, Marshall and Windell.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Pasteur. The History of a Mind, by Emile Duclaux, late member of the Institute of France, Professor at the Sarbonne and Director of the Pasteur Institute. Translated and edited by Erwin F. Smith and Florence Hedges, Pathologists of the U. S. Department of Agriculture, Octavo of 363 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $5.00 net.

The author of this work, Emile Ducleaux, was a very eminent scientist himself and for some twenty-seven years worked with Pasteur and later became the director of the Pasteur Institute. He writes in the vivid, precise, yet colloquial style of the best French literature and the book is both a delight in its style and composition, and an inspiration in its graphic description of the development of Pasteur's mind and the various logical steps, by which he reached the goal of some of the greatest discoveries in the natural sciences.

Pasteur was, above all else, an experimenter and deplored the classical education which tends to inhibit progress by undue worship and awe of authority and dogma. Yet he was endowed with the rare gift of constructive imagination that enabled him to forsee the most far-reaching and practical results from deductions based on his laboratory experiments. Beginning with his studies of the yeast plant, discovered as early as 1620 by Leuwenhoeck, the inventor of the microscope, Pasteur soon became convinced that fermentation of beer was due to the growth of this living organism and, in gaining acceptance of his theory, had to combat the authority of the greatest chemists of his time, especially Leibig, who took a purely chemical view of the origin of fermentation.

Then proceeding to the investigation of vinous fermentation, he discovered the same role in the growth of the mycoderma aceti and opened up the great field of bacterial influence, not only in the field of fermentations without the body, but in human pathology, by conceiving that blood would be similarly acted upon by the action of bacteria. Next he passed on to the study of bacteria in the blood of chicken cholera and anthrax and by an accident, in first injecting some cultures that had inadvertently died followed by living cultures, discovered that he had secured a means of preventing this disease. Following this he applied for the first time the use of vaccines against anthrax in that famous experiment with controls and the vaccinated so dramatically successful, and which have been so many times described. Finally, he attacked the problem of rabies, with which his name and fame are most generally associated in the minds of the living. His life and the gradual growth and natural sequence of great events from small beginnings is in itself a living epic. The translators have done a very worthy service in perpetuating in the English tongue this charming and notable biography of the man, his mind and his works.

Winslow

Psychopathology. By Edward J. Kempf, M. D., Clinical Psychiatrist to St. Elizabeth's Hospital, Washington, D. C., etc. 762 pp. 87 illustrations. C. V. Mosby Co., St. Louis, 1920.

As indicated in the preface, this book is written for the professional student of human behavior. The author has acquired much material dealing in a personal way with mental pathology of different types, and it is the detailed presentation of this that gives his book a value particularly its own. In estimating human faults such data are needed, but for most the opportunity and the skill to properly get such information is wanting. The author believes in a mechanistic classification of the neuroses and psychoses, as a separate chapter explains. While certain advantages are obvious, the difference of view point is so far away from that which is now generally accepted, that it may tend to confuse rather than help the casual reader. The classification adopted by the American Medicopsychological Association in 1917 was received for use by the War Department, and now we must hesitate to lose the advantages of a commonly accepted terminology and grouping.

There are those who with the author recognize the need for certain social adjustments in our educational system, and would have biologic facts put openly in the teaching but would not wish to advocate either easier divorces or trial marriages as a measure of psychotherapeutic prophylaxis.

Gulick

Practical Preventive Medicine. By Mark F. Boyd, M. D., C. P. H., Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Octavo volume of 352 pages with 135 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $4.00 net.

This work is an extraordinarily good one, owing to the author's unusual ability and judgment in the condensation of an enormous subject into its more essential principles. The first portion of the book is devoted to infectious diseases, the sources and methods of infection, and the methods of control and disinfection. Then come chapters on excreta disposal, the matter of milk and water and foods in relation to health, and insects and animals as carriers of infections. Next, deficiency diseases and food requirements occupy two chapters. Following are chapters on occupational diseases and on diseases arising in utero and inherited. The hygiene of infancy and childhood, personal hygiene, domestic sanitation, and heating and lighting comprise five later chapters. Finally, the book closes with four chapters on statistics of birth, deaths, population and sickness, with one on public health administration. There is no more admirable, concise, yet well-considered summary of this vast subject of preventive medicine, in which the reviewer has been especially interested.

Winslow

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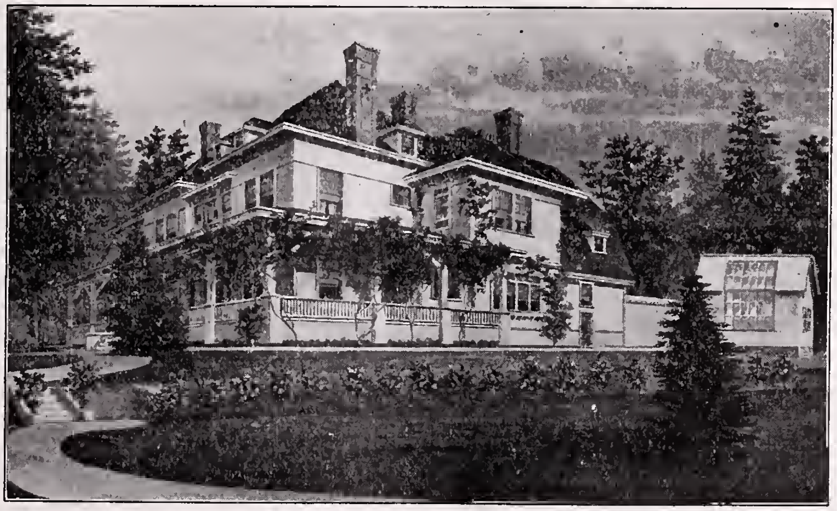

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The Roentgen Diagnosis of Diseases of the Alimentary Canal. By Russell D. Carman, M. D., Head of Section of Roentgenology in the Division of Medicine, Mayo Clinic and Professor of Roentgenology (Mayo Foundation), Graduate School of Medicine, University of Minnesota, Second Edition Thoroughly Revised. Octavo of 676 pages with 626 original illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth $8.50 net.

The new revised edition of this work is a distinct credit to the author and brings this branch of medical science up to date. Two new chapters have been added, one on hourglass stomach and another giving an abstract of published work on pneumoperitoneal diagnosis of abdominal lesions, thus enlarging the work by 98 pages and some 122 new illustrations. The arrangement of contents is very pleasing and the treatment is concise and definite. The illustrations are exceptionally good and give the reader a clear conception of the conditions described. Every one attempting to do gastrointestional work will be benefitted by a perusal of this book, whether doing his own x-ray work or not. SNIVELY.

A Text-Book of Pathology. By William G. MacCallum, M. D., Professor of Pathology and Bacteriology. Johns Hopkins University, Second Edition, Thoroughly Revised. Octavo volume of 1155 pages with 575 original illustrations. Philadelphia and London: W. B. Saunders Company, 1920, Cloth, $10.00 net.

In this book is found the combination of the clinical and etiologic factors as the basis for the study of the pathologic conditions resulting from disease. The diseases illustrating the pathologic principles are all well chosen and the book is written in a very concise and interest-holding manner. As a text-book to the second year medical student it should stand as a beacon light to guide his thoughts to the application of the principles gleaned from his first year's studies, which can be used thruout all his later years of practice.

GARHART

Optomistic Medicine. Or the Early Treatment of Simple Problems Rather Than the Late Treatment of Serious Problems. By a Former Insurance Man. 318 pp. $3.00 F. A. Davis Company, Philadelphia, 1921.

It is not clear why the author of this book conceals his identity under the designation a former insurance man. The book contains much of interest and useful suggestion. His purpose is to demonstrate that a physician should be an optimist. "Nothing relieves the tension of anxiety better than a good joke." Ordinary medical treatment is not considered, but much is said concerning sensible relations between physician and patient. "It is a mistake to ever consider the case of a patient who comes to the office as trifling." He says that it involves time and patience to seek access to the inner consciousness of the timorous or prudish patient, but the returns fully justify the trouble. Many patients need advice rather than medicine but the physician often feels he is not justified in asking a fee unless some form of treatment is outlined. There are many personal incidents recited, illustrating sensible ideas which are worth considering. The book contains many suggestions which will benefit the physician who takes time to read the book. SMITH

The Psychology of the Special Senses and Their Functional Disorders. By Arthur F. Hurst, M. A., M. D., F. R. C. P., Physician and Neurologist to Guy's Hospital. Cloth. 123 pp. $5.00. Oxford University Press. London and New York, 1920.

This volume is particularly a discussion of hysteria. The author has a conception that is different from the one commonly held. The mental and physical stigmata, which in text-books are mentioned as indicating the base from which the attack itself can develop, are here regarded as incidental products of suggestion. Hysteria is defined as a "condition in which symptoms are present which have resulted from suggestion and are curable by psychotherapy." This is an unusually satisfactory book on a subject that is open to much confusion. One hundred and twenty-two pages are broken into ten chapters. Each is clear, concise, and interesting. GULICK

Practical Tuberculosis. A Book for the General Practitioner and those Interested in Tuberculosis. By Herbert F. Gammons, M. D., Superintendent, Woodlawn Sanatorium, Dallas, Texas, etc. 158 pp. $2.00. C. V. Mosby & Company, St. Louis. 1921.

This book possesses the virtue of brevity. It gives in condensed form many valuable points in the diagnosis and treatment of tuberculosis. The author examines the patient before taking his history in order to avoid bias from what the patient says. A hairy chest is a great obstacle in examination and, therefore, to shave this part of the anatomy is of great assistance. There are included numbers of useful "don'ts" for the physician. Some of these are "don't wait to find tubercle bacilli before making a diagnosis; don't tell him he will be well in a short time; don't go by chest signs alone; don't give medicine unless absolutely necessary." Medicines, vaccines and serums have killed more patients than they have cured. SMITH

The Logic of the Unconscious Mind. By M. K. Brady. Cloth, 316 pp. $6.40. Oxford University Press. London and New York, 1920.

The author purposes to examine the process of reasoning, to observe certain tendencies that lead to fallacy, and then to apply logic to life. The reader who follows the subject into the final chapter, entitled "Conclusion," may be disappointed in not finding clean cut statements as to the development of the unconsious mind and its influence upon rational thought. The preface calls the book a sketch, and intimates that the author is away from her chosen field. GULICK

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ORIGINAL CONTRIBUTIONS

OBSERVATIONS ON GOITER.*

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SEATTLE, WASH.

The thyroid gland is the heat regulator of the body; it is the governor of the rate of metabolism of the tissues. An enlargement or overstimulation of the cells of the thyroid constitutes goiter. Enlargement of the thyroid gland is not essential, as hyperthyroidism has been and frequently is seen in glands of normal or even subnormal size and because of their increased rate of function must be classified as goiters.

Goiters are probably best classified according to their gross pathology into

1. Colloid.
    (a) Adolescent,.
    (b) Simple colloid.
2. Adenoma.
    (a) Non-toxic.
    (b) Toxic.
3. Hyperplastic, exophthalmic, always toxic.
4. Carcinomatous.
    (a) Non-toxic(?).
    (b) Toxic.

Adolescent goiters appear in young people of either sex between the ages of ten or eleven up to twenty years of age or even older. These are soft, usually symmetrically developed glands. A small percentage are pulsating with thrills and bruits present in the superior thyroid vessels. The patient's pulse, blood pressure, temperature of the body and appetite are normal, all of which are directly opposite to what would be expected in toxic goiters, as these symptoms do not present the picture of intoxication of any kind. In many, especially girls in the teen age, there will be found associated with, but distinct from, the goiter symptoms, a state of nervous exhaustion which confuses the picture and makes the differential diagnosis of toxic and adolescent goiters frequently difficult in the borderline cases and can occasionally only be definitely determined by a metabolic laboratory test.

In palpating an adolescent goiter an entirely different sensation is imparted to the finger tips from any other kind of thyroid enlargement. Not infrequently there will be present one or more small adenomata which can be rolled under or between the fingers as a distinctly encapsulated mass or masses, lying adjacent to or incorporated within the hyperthrophied gland. Palpation of an adolescent goiter reveals a soft, symmetrical, yielding, non-pulsating thyroid which slips out of the grasp of the fingers and upward on deglutition, and is to be certainly and positively differentiated from

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*Read before the Thirty-First Annual Meeting of Washington State Medical Association, Tacoma, Wash., Sept. 16-17, 1920.

*This paper is a tabulation of the observations which I made on the goiter cases which came under me personally, while I was in the department of diagnosis of the Mayo Clinic, and on the surgical side at St. Mary's Hospital.

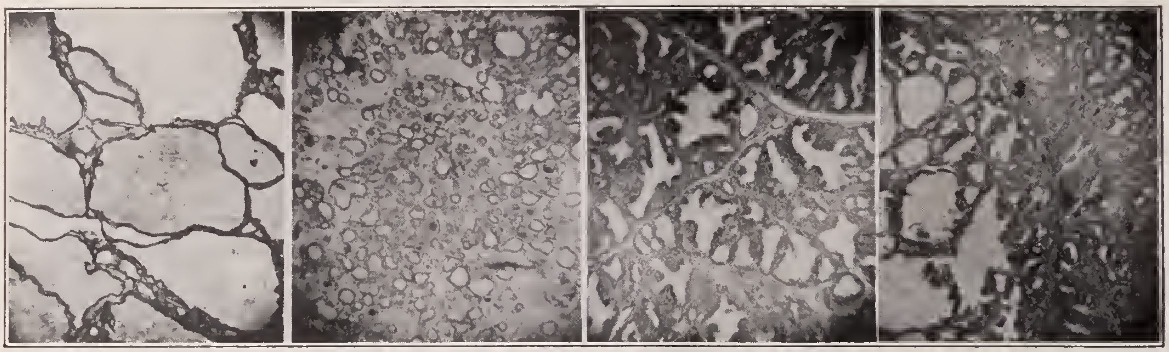

Fig. 1. Fig. 2. Fig. 3. Fig. 4.

Fig. 1. Simple colloid goiter. Fig. 2. Fetal adenoma. Fig. 3. Exophthalmic goiter. Acini lined with high columnar epthelium, showing infolding of the edges. Fig. 4. Thyrotoxic adenoma. High columnar epithelium lining the acini, adjacent to which is an area of fetal adenoma.

all other classes of goiter, inasmuch as these should never be operated on as such.

In a percentage recovery will be spontaneous but, should such be operated on, it is not improbable that too much tissue will be removed and the patient be deprived of thyroid sufficient to regulate the proper metabolic processes of the body. Even tho the thyroid contain a few distinctly palpable adenomata, which will not disappear by any known process or system of therapy other than surgery, yet the adolescent goiter should not be operated on while the adenomata are small and of negligible concern, because, first, there may be multiple small, pea-like, almost microscopic, encapsulated adenomata left behind, which will in the future grow and require another operation, and, second, the adolescent portion of the gland will disappear and the remaining small adenomata may not be prominent enough to cause disfiguration, may never increase in size or cause any inconvenience or any pathologic disturbance and, therefore, never call for removal.

In the absence of toxic symptoms it is better to allow every patient with an adolescent goiter to go without operation, even tho these goiters contain adenomata and are large and disfiguring, until such time as the hypertrophied portion recedes to normal size and the adenomata within the gland develop to such a degree that they can all be felt and enucleated at one operation without the danger of removal of too much of the normal parenchyma of the gland. Unless the patient can hope to derive some definite benefit from the operation, it should never be recommended by the doctor.

Pure colloid goiters, i. e., without adenomata, seldom appear in this country. Usually we find multiple small adenomata present in the encapsulated colloid material. This class of goiter is that most frequently met with in practice and most readily properly diagnosed. They may appear in both sexes and at any age, and present no subjective symptoms except the disfiguring appearance of the neck, until they attain the size sufficient to cause pressure symptoms upon the structures of the neck and, unless the goiter grows substernally, it may attain great size before any pressure symptoms are noted by the patient.

One of the first pressure symptoms observed is that the patient cannot wear tight bands about the neck. The choking symptoms produced thus must not be confused with those of the neurasthenics, which condition was described by Hypocrates as globus hystericus and is one of the early observations which has stood the test of time. The objective signs of pressure are the dilated veins about and over the gland and upper part of the chest, flushed appearance of the face, trachea pushed to one side, and a change in the voice, either hoarse or husky. It is not infrequent to find one and sometimes both vocal cords paralyzed. Pure colloid goiter is never toxic but the adenomata in them may become so.

Adenomata of the fetal and colloid type appear singly or double in one or more lobes of the thyroid, either alone or in connection with other kinds of goiter tissue. They are encapsulated tumors, growing to one side or within the gland substance and as they develop they push aside the gland proper or stretch out the fibres in a thin layer entirely surrounding the whole encapsulated tumor. If but one adenoma appears in each lobe, it shells out very easily at operation with a large percentage of the normal gland tissues remaining. As the number of the adenomata in any one lobe in-

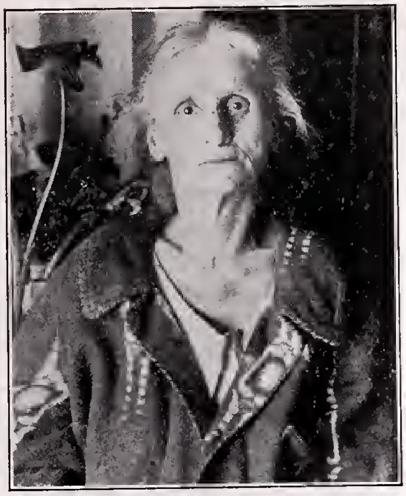

Fig. 5. A definite exophthmic goiter without exophthalmos and with no enlargement of the thyroid gland. Metabolism plus 48, with all associated signs and symptoms of thyrotoxicosis. (Case referred by Dr. E. L. Smythe).

creases, the gland becomes subdivided between the lobes and much more gland tissue must be sacrificed at operation.

In hyperplastic or exophthalmic goiter there are certain cardinal symptoms which when present render the diagnosis exceedingly easy but, if many of these are absent and the picture is somewhat overshadowed by a neurasthenic history, the diagnosis is exceedingly difficult and sometimes quite impossible without laboratory aid. When the thyroid is excessively active the tissues are overstimulated, combustion takes place rapidly, the metabolic rate is greatly increased and, therefore, the symptoms are those of intoxication from overstimulation. The symptoms may come on mildly and run an evenly ascending course to fatal termination, or the course may be in waves of regular or irregular intervals, each succeeding attack being more severe than the former, or there may be a lysis and in a small percentage of cases a spontaneous recovery.

The symptoms as they usually appear are increased nervousness (usually first noticed by the family), dyspnea, tachycardia, tremor, palpitation, exophthalmos, rapid growth in the size of the gland, noticeable loss of power in quadriceps muscle, loss of strength, loss of weight, constant sense of bodily warmth, sweating, markedly increased appetite, nausea and vomiting with probably a loss in the once ravenous appetite. This craving appetite is often freakish in the extreme. I recall one of my patients, a young society woman ordinarily of extremely delicate tastes, who on one occasion ate all the toothpicks on the table and on another ate all the bird seed in the cupboard. It is not uncommon to find patients who relish uncooked foods of any kind, as oatmeal, cornmeal, flour, cream of wheat, or any other form of uncooked food.

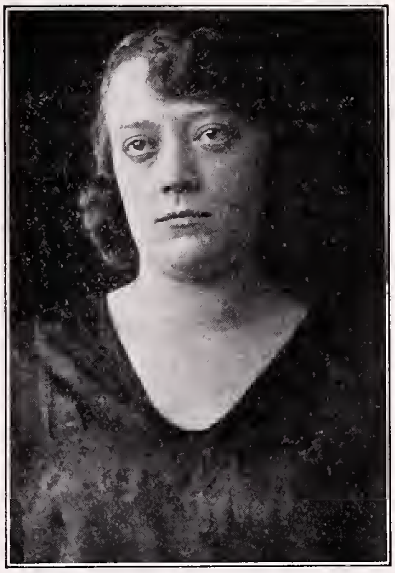

Fig. 6. Exophthalmic goiter showing a greater degree of exophthalmus in one eye than in the other.

Physical signs. Bruits and thrills appear in the thyroid vessels in the early stages. There is almost invariably an increased systolic blood pressure with a rather low diastolic pressure, making the relationship such that the pulse pressure is between 50 and 100 with an average of 70 mm. The heart action is invariably increased, the pulse running between 90 and 200 or even more. The heart is slightly enlarged, with a systolic murmur in the pulmonic area, a decompensation in varying degrees, extra-systoles, fibrillation and edema. The majority of patients will deviate from these symptoms and almost never will all be found in any one patient.

In young people it is not unusual to find those who will have an increase in weight in the early stages of the exophthalmic goiter instead of a diminution. In young women not infrequently there is a cessation of menstruation for many months. I have also seen cases where the exophthalmos was of one eye only and others with a ptosis of one of the eyelids, giving the appearance of monocular exophthalmos.

It is very important that the diagnosis of this class of goiter be correct, as the line of treatment recommended depends on the diagnosis. Exophthalmic goiter is the only type, where injection of hot water, ligation of the superior thyroid vessels or injection of cocaine and urea hydrochloride is indicated as a preliminary step to thyroidectomy. The ligation of the vessels alone will not cure this type of goiter and a secondary thyroidectomy is always indicated.

Adenoma associated with a toxicity is a classification which Plummer has made and has shown to be a separate clinical entity. The pathologist's study of these cases is not conclusive, as in some hypertrophy of the epithelial cells can be shown which simulates exophthalmic goiter very closely, while in others it cannot be demonstrated but the tissue bears a very close resemblance to the adenomata without toxicity.

The clinical aspects which seem to differentiate toxic adenoma from exophthalmic goiter are:

1. A history of goiter for several years, preceding the onset of toxic symptoms. The average time between the appearance of the goiter and the toxic symptoms in thyrotoxic adenoma is fourteen to sixteen years, while in exophthalmic goiter it is less than two years.

2. Difference in the feel of the gland. Exophthalmic enlargement is usually bilateral and symmetrical and almost never contains adenoma.

3. Symptoms of thyroid intoxication without bruits or thrills in the superior thyroid vessels.

4. Absence of exophthalmos. Exophthalmos, however, is not constant in exophthalmic goiter.

5. Symptoms of damaged heart which predominate in the picture as over against nervous symptoms in exophthalmic goiter.

6. A tendency to a gradual increase in the severity of the symptoms without remissions, as is usually the case in exophthalmic goiter. There may, however, be remissions in toxic adenoma.

7. The average age of an exophthalmic case is less by about ten years than in the thyrotoxic adenoma.

8. Exophthalmic goiter causes severe cardiac symptoms in the early stages, where the onset is stormy, and also in the late stages where the heart has been permanently damaged, but such cases usually have other evidences which are pathognomonic. It is also true that adenoma may be found in cases of straight exophthalmic goiter but this is a toxicity unquestionably due to a hyperplasia existing independent of the adenomatous portion.

In my experience I have seen five carcinomatous thyroids, three of which came to operation. Two were diagnosed as toxic and three as non-toxic. One non-toxic case was not diagnosed as carcinoma prior to operation, but the carcinoma was found by the surgeons in the isthmus at the time of operation, on what was diagnosed as a simple goiter. In another instance the carcinoma was superimposed upon an adenoma which had been present for thirty years. Six months before I saw this case there had begun a very rapid growth of one lobe of the gland with a marked increase in the cervical lymphatics. When I saw the patient the trachea was pushed to one side, the vocal cords were paralyzed and deglutition was very difficult, as was also her breathing. The x-ray examination of the lungs showed multiple metastatic areas, as well as a substernal growth. This case was not operated on. The other case of carcinoma not operated on was less advanced, with no metastatic areas in the lungs, yet with sufficient cervical lymphatic involvement to make the diagnosis clear. She showed definite thyrotoxic symptoms.

The points to be considered in diagnosing carcinomatous thyroid are (1) recent rapid growth, (2) lymphatic involvement of the neck and chest, (3) metastases to the bones, revealed by the x-ray.

A hard nodular thyroid does not necessarily mean carcinoma, as a fetal and colloid adenoma which has undergone fibrous and calcareous degeneration produces a hard gland which cannot clinically be differentiated from that type of carcinoma, in which there has developed much fibrous tissue, commonly known as the scirrhus type. All carcinomatous thyroids are not of this kind, as some are very cellular and are soft to the touch. I believe this type to have been diagnosed as aberrant thyroids in the past which in reality was not aberrant tissue at all but metastatic areas of a carcinoma. This type quickly involves the bones, and can be demonstrated by the x-ray. The gross pathologic specimen is of a pale pink color. It is well to bear in mind that carcinoma of the thyroid is never found in adenomata which have undergone fibrous and calcareous degeneration. This is true because carcinoma is a constructive process, while degeneration of any kind is destructive.

Tetany is a postoperative complication which may follow thyroidectomy and this condition occurred once in the cases which came under my observation. The third day following the thyroidectomy the patient was seized with cramps in the hands which was relieved by the internal administration of calcium lactate. A metabolism test was made which showed the rate to be a minus 11 and later it dropped to minus 19. A small dose of Kendall's thyroxin was given (1-10 of one milligram) and the calcium lactate was discontinued and the tetany reappeared. Later other doses of thyroxin were given, but it was observed that the calcium lactate could not be discontinued even for a couple of days without the tetany symptoms reappearing. Before the patient left, the metabolic rate was normal without the use of any more thyroxin but the calcium lactate had to be continued to keep the tetany down. During the period of hypothyroidism the patient developed true symptoms of myxedema. She became languid, her tongue was too thick to talk well, her hair became dry, skin leathery and scally, and her bodily movements were slow. She was the very opposite to this when I saw her the first time.

TREATMENT.

There are two types of colloid thyroid which should be treated medically: (1) Adolescent types of colloid enlargement and (2) colloid goiters associated with a psychoneurotic nervousness.

Surgery does these cases no good and it is more than probable will do them harm. All other forms of thyroid enlargement call for surgical intervention. All forms of colloid and fetal adenoma may be done under either general or local anesthesia. If the gland is large and presses upon the trachea sufficient to push it to one side, it is probably wise to begin the operation under local and, if a general anesthetic is resorted to, an effort should be made to hold the patient only far enough under to take the sharpness of the pain away but not to destroy the action of the voluntary accessory muscles of respiration.

If a substernal projection be suspected, it should be confirmed by the x-ray and this condition should be recognized before operation if possible. In only one instance did any case coming under my observation require a tracheotomy on the table but four cases required it later. This was occasioned, first, because of the edema of the tissues surrounding an easily collapsible trachea shutting off the air altogether or, second, in toxic cases by collapsing sufficiently to diminish the air intake so that the heart, already badly damaged, was overburdened.

Cases of toxic goiter coming for examination appear in varying stages of toxicity and the line of treatment to be instituted must depend on the degree of intoxication and the havoc already wrought. The more mild cases of both exophthalmic and thyrotoxic adenoma may be prudently recommended for immediate thyroidectomy. Those of even longer standing, where there has been and is slight evidence of cardiac change, may have an immediate thyroidectomy safely after a few days rest in bed, provided the heart changes are well compensated for. Cases of toxic adenoma, showing mitral as well as tricuspid insufficiency with edema of the ankles, may have a thyroidectomy successfully after rest in bed and the administration of large doses of digitalis (25 min t.i.d.), but at the time of operation the heart must be strong enough to withstand the extra load which will be thrown upon it by the thyroidectomy, at which time large quantities of the thyrotoxic material will be thrown into the circulation.

All exophthalmic goiter cases, showing even moderately advanced toxic or cardiac symptoms, should be placed in bed and have daily observation. They should be treated by the injection of hot water, or cocain and urea hydrochloride in the more severe cases as a preliminary step to ligation, which may be done in from one to three or four weeks later, when one vessel may be ligated and the second ligated a week to ten days later. In a small percentage of cases, where the reaction following the ligation of the first vessel is exceedingly slight, a thyroidectomy may be safely done instead of the second ligation. If both vessels are ligated, the patients are sent home and told to desist from work of all kinds. The worst cases are to remain in bed until all heart symptoms have subsided and do not reappear after sitting up for an hour or so or after walking a short distance. Most of such cases should remain quiet for four to eight weeks or longer before thyroidectomy is undertaken. This step should not be taken until all cardiac insuffiency is well compensated for. Patients who have had their ligation as a rule gain weight remarkably. The appetite is good but less craving. I recall one patient who in three months had not only regained the 18 lbs. she had lost but weighed 47 lbs. more than ever before. Regardless of this improvement, a thyroidectomy should be done to be sure of lasting results.

THE TOXIC THYROID.*

W. F. Howard, M. D., F. A. C. S.
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The thyroid gland, when its functions are normally performed in connection with the adrenals and other glands, collaborating together, controls the body metabolism or tissue change, consisting of two processes, anabolism and katabolism. As a student, I memorized these processes as follows: Ana builds it up, kata tears it down and meta helps them both, and was early enabled to remember that anabolism is the building up process, katabolism the tearing down process and that the two processes together compose metabolism. The thyroid gland, as above mentioned, is a vital factor in this combined process, and when acting too little or too much increases in one case the building up process, and in the other the tearing down or waste of tissue process of the human body.

Normally, until adult life is reached, anabolism considerably exceeds katabolism, and then slowly decreases until, as senility is reached, the katabolic process physiologically exceeds the building up. There are two marked periods in the life history of the female, when a sudden development greatly increases tissue change, most noticeably, anabolism. One of these is normally universal in the female, when she has reached the period of puberty and consists, besides general growth, of the sudden growth of the mammae, the pelvic organs and female contour. It goes further than this and, influenced by other glandular secretions, institutes the feminine mentality.

The other marked period is well-nigh universal, to some degree voluntary, and may be repeated more than once, and in some individuals for various reasons lacking. This is the physiologic, or as some consider pathologic, process of pregnancy. During these periods mentioned, the endocrine factors stimulate the thyroid gland to increased production, so as to increase this special anabolism. This demand is so sudden and imperative that in many instances the thyroid gland increases noticeably in size and so continues until the special development is completed, when the gland is apt to return to its normal dimensions. One may, according to his reasoning, consider this a physiologic or a pathologic goiter, but it is certainly better, until time proves differently, to consider it temporary or time limited. And evidently this form of thyroidism can not appear after the menopause has been reached. A similar thyroid enlargement appears much less frequently in adolescent males. These types include all the instances of non-toxic hyperthyroidism ordinarily met, but they may be so marked as to merge into toxic goiter.

A mineral element, iodine, seems to have been demonstrated to be necessary to the complete elaboration of the thyroid secretion. A colloid is formed and stored in the gland of individuals who lack iodine metabolism. Further changes in this colloid will be discussed later in this paper.

Two general kinds of enlargement of the gland occur, namely, one due to decreased iodine metabolism and the other due to decreased calcium metabolism, according to which element is most lacking in the water and vegetables of the given locality. Iodine is lacking in portions of the United States and Europe and calcium lacking in Australia, New Zealand and some parts of Europe. Either form may be modified by other factors and all forms are known to become toxic, and all kinds of goiter have been observed to develop malignancy.

This discussion now takes up toxic thyroidism only, which may coexist or be a part of any form of enlargement or no enlargement. This is always the result of increased thyroid activity, and is a cause of increased metabolism. It is brought about in one of these ways:

(1) Some exciting cause stimulates the parenchymatous portion of the gland to hypertrophy and hypersecretion.

(2) There may be an increased secretion retained in the gland in the form of a colloid goiter and later a new supply of iodine furnishes the mineral necessary to complete the iodine metabolism and collaborate sufficient secretion to be toxic.

(3) Some long continued strain, but more often a sudden overwhelming experience, exhausts the adrenals to such a degree that their loss of control over iodine metabolism allows the thyroid gland to supply a toxic quantity of secretion.

(4) Any two or all three of these conditions may coexist.

Some definite characteristic symptoms and pathology develop. They are pycnocardia, tremor, exophthalmos, changes in the size and structure of the gland, secondary heart conditions, and degeneration of the sympathetic nervous system. There is marked muscular weakness, with a peculiar weakness of the knees. It is increasingly difficult to walk upstairs. This muscular weakness is due to lessened adrenal activity. The heart muscle weakens and dilatation may result in cardiac murmurs and the weakened arotic walls may simulate aneurism in any portion of the large artery. The appetite usually remains good, but loss of weight is the rule, both because of increased metabolism.

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*Read before Pocatello Medical Society, Pocatello, Ida., Dec. 14, 1919.

The rapid tissue changes result in restlessness. In the more toxic cases the patient cannot remain quiet. There are continued movements as under nervous stress. The limbs are moved up, sidewise, the body turned, clothing adjusted frequently. Tho seemingly intentional, these movements tax the patient's strength and allow little rest. This same condition affects the involuntary and heart muscles. There is increased peristalsis so as to produce several bowel movements daily and attacks of diarrhea are not uncommon. On the heart muscle it produces pycnocardia. Thru its effect on the sympathetic system, coordination of the eye muscles is impaired and the weakened eye muscles permit exophthalmosa to result. Lessened adrenal secretion allows the superficial vessels and capillaries to dilate, causing the thyroid flush to appear all over the integument. Petechia result from this increased superficial circulation. Wakefulness also follows. There is no pain.

The diagnosis is easy, when many of these symptoms coexist and should always be made when three or more common symptoms are present, and should always be considered when there is pycnocardia with movements under nervous stress. Dyspnea becomes more marked as toxicity increases. In obscure cases body metabolism may be measured and if found increased there is too great thyroid activity. Observations on the sugar content of the blood before and after the intake of a definite quantity of sugar furnish evidence concerning metabolism, and consequently measure the individual's thyroid activity. Goetsch's test furnishes good evidence of the degree of thyroid activity, but should not always be employed in cases with hard or booming pulse. This may briefly consist of the hypodermic injection of seven drops of adrenalin solution and same quantity of sterile water. The bluish gray circle that appears in a quarter of an hour and becomes surrounded by a red line of hyperemia and continues three or four hours is the positive reaction. The degree of hyperthyroidism is measured by the duration and intensity of the reaction. A control should always be used to compare the normal with the positive reaction. The Goetsch reaction may be further exemplified by ten minute records of blood pressure pulse rate and respirations per minute.

A toxic goiter is usually asymmetrical and enlargement of one lobe predominates. It seems to be increasingly held that if operation be done a considerable portion of both lobes should be removed. The adolescent type is much more symmetrical and frequently the two lobes are so nearly equal in size that only by actual measurement could one determine which lobe is the more greatly enlarged. All forms of goiter except those that become calcified cause variable degrees of degeneration of the myocardium. When toxicity develops in a patient having a long existing goiter, there is then already a weakened heart muscle and dilatation and pycnocardia results. At the same time dyspnea develops. It is here difficult to determine whether the tachycardia is due to degeneration or to toxicity. As a rule the toxic heart is most rapid in the morning and the degeneration of the myocardium shows the most rapid pulse on exertion only.

These patients may have repeated attacks of self limited duration. During such attacks, owing to increased katabolism, the patient becomes thin and later, after the toxicity has subsided, she regains her usual weight and may become considerably heavier than before. Unless she has been under medical observation, she remains ignorant of the fact that she has passed thru an attack of thyrotoxicosis, but after repeated attacks of lean and fat, there will develop the more pronounced symptoms of unmistakeable toxic hyperthyroidism. Whenever a patient loses flesh without apparent cause, hyperthyroidism should be considered in an attempt to account for the condition.

Like in chronic appendicitis, these attacks of thyrotoxicosis are self limited, and again as in appendicitis the atacks become more severe. Finally the attacks merge together or the patient has suffered so marked a degeneration of the myocardium and the sympathetic system that she has a continuous tachycardia, tremor and exophthalmos, together with some other of the many symptoms of the disease. Of all symptoms the tachycardia and the exophthalmos are slowest to disappear because caused by an actual degree of degeneration; but after cure these symptoms usually disappear. But there may be sufficient degeneration of these structures to cause death early or later.

It is useless to say that there is no medical treatment for this toxicity. There is. Rest in bed is an essential factor in treatment. Two drugs with about equal results are known to benefit the attacks. Calcium, the citrate or other salt, is given with the idea of changing the iodine metabolism to calcium metabolism, and therefore secure the least harmful goiter. The other drug is phosphorus, sodium phosphate or other salt of phosphorus, given because it lessens iodine metabolism and consequently lessens the thyroid secretion. In adolescents thyroid extract in small dosage often causes the disappearance of the goiter and consequently acts as a prophylactic against the small number of goiters at this age becoming toxic.

Forscheimer's treatment, quinine grs. 5 and ergotin gr. 1, t. i. d., often controls the early symptoms. Thyreodectin in five grain doese has met with some success. Some remarkable results are reported from the use of x-rays. Most complete rest is essential in any method of treatment. It is also important to increase the diet to as great a caloric value as the patient can assimilate.

Surgical treatment is indicated when (1) the patient has failed to respond to medical treatment; (2) the time or means of the patient do not permit a continued expensive course of treatment; (3) the election of the patient who prefers the risk of surgery to the risk of medical treatment.

The time of operation should always be at the election of the surgeon who has prepared his patient to most safely undergo the operation. Operation for toxic goiter can scarcely ever be an emergency operation. Operators seem to agree that the most careful judgment is required to determine the amount of the gland to be removed, but it seems that the error is always in removing too little. If the smaller lobe be left, new attacks are apt to occur. Small fractional portions of the gland not removed hypertrophy or regenerate, so that if any portion of the gland be left the thyroid function remains. Good judgment is again required to determine whether ligation should precede lobectomy or whether as great safety obtains in a single operation.

No other condition commonly met with requires so much individual study and experienced judgment as the toxic thyroids. Yet, because of the increasingly low mortality and the benefits following the operation in the hands of the best surgeons, we may expect the surgical treatment of Grave's disease to become as dependable as the surgical treatment of appendicitis.

THE SURGICAL ASPECT OF GOITER*

J. Tate Mason, M. D., F. A. C. S.
SEATTLE, WASH.

The clinical aspects of exophthalmic goiter dates back farther than the entire subject of either the surgical or medical type. Parry, in 1786, described the disease clearly and fourteen years later an Italian, Flajine, gave nearly as good a description. In 1835 Graves gives an account of the disease in his lectures. Five years later Baselow gave equally as good an explanation.

With the exception of spasmodic outlines of the disease from these men and others of whom no mention has been made, the subject of goiter was at a standstill until about 1882, when Theodore Kocher attracted the medical profession of the world by demonstrating that the gland could be partially removed with little danger to the patient. A few years later Moebius supplied a most important element for the surgical treatment by his studies, namely, that in the disease there is an excessive amount of toxins, which are secreted by the gland and absorbed by the lymphatic system. Since then the surgical treatment of goiter has gradually impressed its advisability upon the profession, until today it is agreed that the ultimate relief in each case of diseased thyroid other than adolescent goiter and cretenism must be surgical.

EMBRYOLOGY.

The thyroid tissue comes from an invagination of epithelium of the pharynx or foramen cecum at the base of the tongue. This begins from the third to the fifth month of embryonic life and pushes forward into the neck. Except for the fact that the path which it leaves does not close occasionally, leaving a thyroglossal duct cyst, the main embryologic origin of the gland has but little practical importance. This, however, is not true of the parathyroids and other thyroid tissue which arise from the third and fourth branchial clefts, pushing themselves forward thru the neck to the lateral and posterior surfaces of the lateral lobes. It is very rare when these bodies do not connect with the main thyroid tissue but, when such is the case, they may be found in any part of the neck as an aberrant thyroid. It is well to remember that this tissue has all of the parathyroids of that side of the body. When removed it is advisable to leave the posterior capsule as is done in the usual thyroidectomy.

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*Read before Whitman County Medical Society, Colfax, Wash., Jan. 17, 1921.

*From Mason-Blackford-Dowling Clinic.

SURGICAL PATHOLOGY.

The pathology of enlarged thyroid can be divided into five groups.

1. Adolescent goiter.
2. Colloid goiter.
3. Adenomata.
4. Exophthalmic goiter.
5. Malignant neoplasms.

Group 1. Adolescent goiter is a symmetric hypertrophy of all the structures of the thyroid. This form is most always found in young people. It has to do with drinking water and usually responds to iodine treatment. Whether this is due to the antiseptic powers of iodine or the lack of iodine in the system has not been definitely determined.

Group 2 and 3. Multiple adenomata and colloid goiter can be put in the same class, inasmuch as colloid material is a passive accumulation in the dilated aveoli, and is usually a rentention process.

The adenomata are encapsulated tumors within the normal thyroid gland, which may have anything within their walls from a low grade fetal tissue to a miscropically normal thyroid. The adenoma may or may not be toxic. When toxic, they present a chain of symptoms as typical as exophthalmic goiter.

Group 4. The exophthalmic form has its extensive cellular hyperplasia which is a specific and pathognomonic histologic picture.

Group 5. The malignant neoplasms occur in about one per cent of the multiple adenomata. There have been two cases of carcinoma of the thyroid seen by our clinic; both lived about fourteen months from their first symptoms.

TOXIC ADENOMAS.

The toxic adenoma is the most commonly overlooked type of thyroid intoxication. We usually note that the patient has an enlarged thyroid and also that there is a history of a long chain of nervous symptoms. Our greatest source of error has been the failure to connect these two factors.

The adenomas produce a sequence of symptoms quite different from exophthalmic goiter. The enlargement of the goiter is usually first noted in the teens or twenties and exists from ten to fourteen years without symptoms. Following this period there is usually a lapse of three or four years before the patient feels ill enough to present himself for observation. The intoxication is so insidious that in all probability there is a period of from six to eight years of intoxication before he comes for examination (fig. 1).

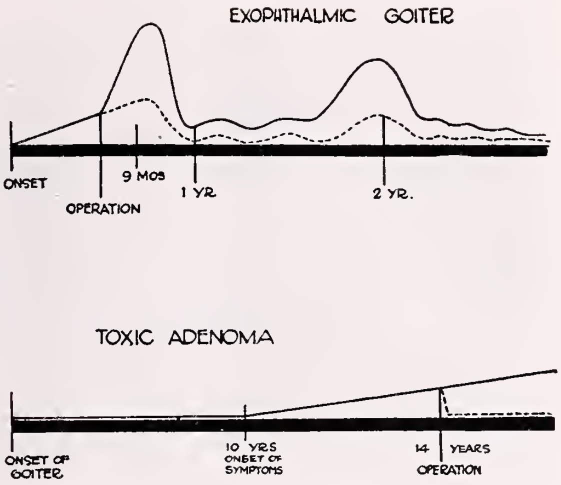

Fig. 1.

There is a facial expression in many of these cases which is characteristic. The eyes seem sunken with wrinkles around them; there is a dark area under each; the lines of the face are more pronounced than one would expect to see for some years. Such facial expression is not so often present in older patients. There is also tachycardia, nervousness, tremor, loss of strength and loss of weight. The basal metabolism findings have been of great assistance in this class of cases, because we have been prone to call them neurasthenia or cardiopaths until late in the disease. When these cases were not seen until very late, we found degenerations in the heart and other vital organs which were beyond repair.

Rest and medical treatment preliminary to operation should be undertaken in all cases, if much toxicity or heart damage is present. These patients should not be given a series of operations as in exophthalmic goiter but four-fifths of the gland should be removed at the first operation under morphine and local anesthesia. We now regard no toxic adenoma as too poor a risk to be put at rest under observation with a view to thyroidectomy. If thyroidectomy can be performed, there is much improvement in the patient's general and cardiac condition. In fact there is no surgical case in which the end result is more satisfactory than in the toxic adenoma. The average gain in weight is from 15 to 20 pounds and the patient's return to normal health is much more complete than in any other type of goiter.

The mortality rate is less than one-half of one per cent. Occasionally too little of the gland is removed which may result in a recurrence of the goiter and the toxic symptoms. Our present tend-

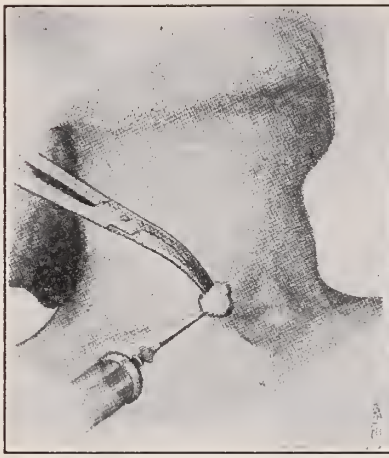

Fig. 2.

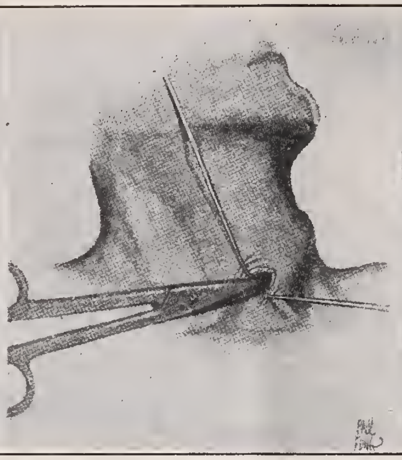

Fig. 3.

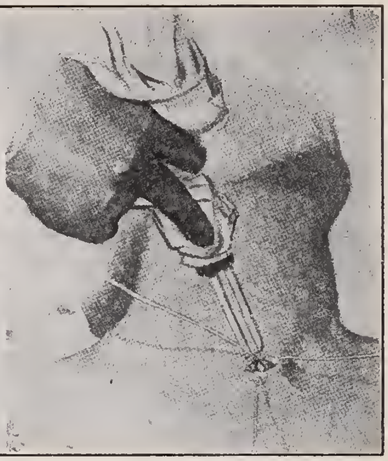

Fig. 4.

ency is to remove more rather than less of the thyroid. No bad results have followed this procedure. At the present time we have two cases under x-ray treatment, in which we feel that some toxicity is reappearing. No definite statement as to the end results can be given yet for the time is too short.

EXOPHTHALMIC GOITER.

The onset of exophthalmic goiter is relatively acute and the course of the disease is usually typical. The clinical picture is that of a toxin working on the central and vasomotor systems. Later on the symptoms are complicated by the direct stimulation of other organs. These symptoms are cerebral stimulation, vasomotor disturbances of the skin, tremor, mental irritability, tachycardia, loss of strength, cardiac insufficiency, exophthalmos, diarrhea and vomiting, mental depression, jaundice and death.

The typical case shows a slight thyroid enlargement with mild toxic symptoms during several months. The symptoms gradually increase until about eight months, when they become markedly worse (fig. 1). At from nine to ten months there is an explosion of symptoms, commonly known as a crisis. Then there is an improvement with fairly constant symptoms. At about the end of the second year there is a second crisis, never quite so severe from the standpoint of toxicity as the first. Early in the disease it may be difficult to make a diagnosis of hyperthyroidism. The basal metabolism rate again is of great assistance at this period, because it assures the diagnosis and enables us to urge surgical interference at the time when the most benefit can be given by that. The heart and liver have not been damaged and the operative risk is better than at any later period of the disease.

The patients when put at rest show a temporary improvement. This and the rapid improvement which occurs following the crisis have caused many drugs to be considered specific; thus good surgical risks have often been permitted to become extremely poor ones.

The ideal time for operation is within the first six months. The closer we get to the high wave of toxicity, the higher is the mortality and the larger the number of incomplete cures. The patient operated upon before the first crisis is eventually much better off than the one who is carried to and then thru the crisis by medical treatment and operated upon later. However, the patient, who is operated upon earlier in the disease, will have a slight wave of toxicity at the time of the first crisis. The severity of this wave will be reduced in proportion to the fraction of the gland removed.

In extremely toxic cases it is impossible to tell how much operative interference will be tolerated. The history, blood pressure and metabolic rate give an index rate to the degree of intoxication. But the shock following operative procedure is often much greater than was expected. This is because we have no way of determining the damage that has already been done to the vital organs, altho our findings upon the present activity of the gland may be fairly accurate.

Most of the exophthalmic cases will be safer if operated upon by stages. It also seems wise to keep them at rest and under medical treatment until maximum improvement is obtained. If the patient is such a poor surgical risk that operative procedure is to be feared, a small piece of the gland may be destroyed by actual cautery under local anesthesia (figs. 2, 3, 4). This may be performed several times prior to ligation of one side. There should be usually a week between each cautery and ligation. After the second ligation is done the patient is sent home for from sixty to ninety days, to return for a thyroidectomy.

In one case, recently after cauterization and ligation, the patient's metabolic rate continued to be high. We transfixed the gland after the method of Ballin before thyroidectomy with much relief. This method is no doubt another step in the progressive line of attack upon the toxicity of the gland.

CONCLUSIONS.

1. All patients suffering from toxic adenoma or exophthalmic goiter are surgical cases.
2. Preliminary rest and medical treatment are essential to a low mortality rate in bad cases.
3. Poor end results are usually due to the leaving of too much gland or to operations having been undertaken after the onset of permanent degeneration of vital organs.
4. Fractional cauterization of the gland in extreme exophthalmic cases as preliminary to ligation has proven efficient.

THE GOITER PROBLEM.*

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The question why the thyroid gland should enlarge with or without symptoms has been in the minds of the foremost men of the world since the earliest days of medicine. Of the legion of conditions and diseases that have been so thoroly written about and on which so many diverse views have been advanced, there are probably none that stand ahead of this gland. These conditions of goiter have been associated with mountains, certain soils, waters, altitude, the air charged with electricity, heredity and a systemic or toxic condition, etc.

I will not go into the anatomy other than to say that this gland which weighs normally from one to two ounces, relatively larger in females than in males, for its size receives five times as much blood as the kidneys and practically all of the blood passes thru it within an hour. It is one of the ductless glands and it is presumed that its secretion passes thru the lymphatics or nervous system as a hormone.

For this reason there is no doubt that in a number of individuals with full neck or slight enlargement this is due to physiologic conditions. Especially is this noticed in young healthy robust girls about the time of their menstrual periods.

McGarrison[1] has shown that there are at least four functions of this gland, namely:

(1). It governs the growth of all cells and sustains their functional activity.

(2). It controls calcium metabolism.

(3). It is a profound katabolic stimulant, facilitating the breaking down of exhausted cells and governing the elimination of the waste products of their disintegration.

(4). It exercises a protective antitoxic and immunizing action.

There are innumerable groupings of the goiters, but for convenience, they are divided as follows:

(1) Adolescent, occuring between the ages of fifteen to twenty-five.

(2) Simple, occurring usually after the twenty-fifth year, and may or may not be toxic. Under this head are included all degenerative changes that may take place. Adenomas, colloid goiters of the diffuse type occur for the most part in women during middle age.

(3) Exophthalmic or thyrotoxic goiter, occurring at any age, but usually more common between ages of twenty to thirty-five, and in females.

(4) Malignant thyroids.

It is a known fact that the iodine content is the key to the thyroid gland. Overstimulation will enlarge and give symptoms, whereas with a deficient amount we have innumerable symptoms from the mildest forms of a so-called nervous condition to cretins and myxedema.

Iodine was discovered in 1812, by B. Courtois. In 1895 Baumann[2] found iodine to be associated with thyroid secretion and it remained for Kendall, in 1915, to separate as a pure crystalline substance the organic compound which contains iodine. This compound he called thyro-oxy-indol, which has been abbreviated to thyroxin. Plummer[4] has shown that, when this substance is given even in very small amounts, it will supplant thyroid activity, relieving the condition of myxedema and cretinism and in excess will produce symptoms simulating exophthalmic goiter. He has also shown the thyroid gland a most active factor in the metabolism of the human being.

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*Read before the Twenty-Eighth Annual Meeting of Idaho State Medical Association, Coeur d'Alene, Ida., June 10-11, 1920.

The thyroid in young infants is relatively small, and contains little or no iodine. This iodine is supplied thru mother's milk and to very much less degree in cow's milk. Thyroid insuffiency is a frequent cause of enuresis, especially in young children.

The thyroid gland is associated thru its internal secretions with the generative organs, the liver, the pancreas, the adrenals, the pituitary gland and the thymus. All thru life it is in a constant state of activity, especially at puberty and with the onset of menstruation. Hyperplasia may and hypertrophy is particularly apt to occur at this time. During this time the function of the gland in balancing the plasticity of the blood and controlling calcium metabolism is called upon, since at each menstrual flow there is a great loss of calcium.

It has been known for a long time that the parathyroids as well as the thyroid are in a state of active secretion during pregnancy and that these glands usually enlarge about the fifth month. At this time, with active physiologic conditions, one is more apt to have goiter, due to toxic influences of intestinal origin. Pregnancy often follows the feeding of thyroid extract in married women who have apparently remained steril for years. With the onset of menopause the function of the thyroid gland as well as all other glands becomes less and less active.

Goiter is found at all heights. The higher the altitude, the more active the gland. While it seems that we have more goiters in limestone and mountainous countries, they can and do prevail on soils of any formation. Bircher[5] considered that the remains of the extinct flora and fauna of limestone rocks provided these constituents, but it is not necessary that they should be derived from so remote source.

All races of mankind have enlarged thyroids. There is a great deal of doubt as to whether heredity plays any part, certainly not in endemic goiters. Males and females are about equally affected up to the age of puberty. It may be that girls are a little more susceptible.

McGarrison[6] says "goiter exhibits a definite seasonal prevalence, which is generally constant for any given place but may vary in different localities." "In some Himalayan villages over 50 per cent of infants at breast have goiters. Here there is no doubt of a congenital condition, certainly a goitrous toxin secreted by the mother."

People of a lymphatic temperament and those with a neurotic constitution are more prone to have goiters than others. The poorer classes suffer more from goiter than do the rich. Marine[7] has shown the same to be true of ill-nourished puppies, calves and lambs in certain parts of America.

In making rounds with Sir Arbethnot Lane[8] in Guy's Hospital, in 1917, we stopped at the bed of a young girl who had recently been operated upon for appendicitis. She had been suffering from hyperthyroidism and apparently was improving. Mr. Lane remarked, "you see for yourself that there is an improvement, the girl admits it." He said he had told Dr. Charles Mayo several years ago that he was all wrong in his approach to the goiter situation. The way to cure them was to get at the cause. He has demonstrated, at least to his own satisfaction, in a number of instances in radical colon and gastric operations that the patient, if not cured of a goiter, was greatly improved.

Messerali,[9] of Lousane, has observed that intestinal antiseptics, notably B-napthol and thymol, are capable of causing disappearance of recent goiters in young subjects. Incipient goiters very commonly disappear spontaneously when the patient leaves the goiter locality.

Osler[10] divides tumors of the thyroid as follows: "Granuloma, actinomycosis, tuberculosis, syphilis and carcinoma." All of these are rare enough but the first two are extremely rare. According to Engel and Rinners, swelling of the thyroid occurs in 50 per cent of early cases of secondary syphilis.

Balfour[11] has found 103 cases of carcinoma occurring in a series of 14,456 goiters from 1910 to 1918, or 1.19 per cent. The operative mortality was 6 per cent, 47.6 per cent dying soon from recurrence, etc. The point to be brought out here, as in cancer elsewhere, is an early diagnosis and prompt surgical treatment, with removal of entire gland and thyroid feeding following.

Of the other conditions tuberculosis is no doubt more common but still quite a rare condition, as shown by Broders and Plummer.[15]

The simplest goiter is probably that of adolescence. As a rule these are not troublesome and only require operation because of pressure symptoms, adenomas, for cosmetic effects or from toxic conditions. These goiters may persist and later in life, when degenerations take place, produce adenomas, encapsulated colloid areas, cysts, or calcified areas and then become toxic or malignant.

Kocher[12] pointed out the fact that degenerations usually occur in women at about forty to sixty years. C. H. Mayo[13] has observed that the older the person when goiter develops, the more quickly does degeneration occur. Simple goiters often become very large and with an adenomatous condition often project behind the sternum into the chest, forming a substernal goiter, which may give very aggravated symptoms from pressure. On all suspicious necks the x-ray should be used to disclose size and location of tumor.

As to the exophthalmic or thyrotoxic goiters, I will not say much as it is a subject in itself. The principal symptoms are exophthalmos, tachycardia and tremor with or without a demonstrable tumor. As a rule the gland is enlarged but nowhere to the degree of the simple type.

Fright, anxiety and mental distresses are factors which have a great influence on the thyroid apparatus. As has been shown and proven by Cannon", the factor of fear may influence the thyroid indirectly thru the adrenals, by the splanchnic nerves, causing adrenalin to be poured into the blood in large amounts. Myocardial changes usually take place quite early in this form of goiter and as a rule these patients have a rapid running pulse which rate is increased on the slightest exertion. At first they are extremely nervous and restless, usually with an increased appetite and with sleepless and restless nights. As the toxic conditions increase the symptoms are more pronounced, with a loss of weight and probably a persistent diarrhea and exaggerated nervous symptoms.

The fact that a goiter exists is often misleading and one is apt to diagnose hyperthyroidism, when the condition may be truly neurotic. Plummer has done a great deal of work along this line and has been able to demonstrate the difference between the two.

In treatment practically every known drug in the pharmacopea has been prescribed and innumerable so-called cures used, but so far there is none that will cure goiters. It is up to the internist to know what has caused or is causing a particular gland to enlarge and treat accordingly. Medicines as a rule will only do good in glands that are of short duration, those that have not undergone marked degenerative changes, etc.

Iodine in some form is undoubtedly one of the most commonly used drugs and, except in treatment of exophthalmic goiter, probably does more good than any known drug. Autogenous vaccines have been used. Thyroid extract is effective in some cases, where iodine does not seem to do good. X-ray and radium have both been used with good results in some cases, especially in some borderline surgical cases.

In surgical treatment one should bear in mind, especially in the thyrotoxic cases, when to keep his hands off. Often a single hot water or quinine-urea injection will cause such marked reaction that the patient is thrown into a crisis. These cases have to be handled with extreme care and perhaps, after a ligation of one or both superior poles, allowed to go home for a few months and, if conditions improve, a thyroidectomy may be done later. Death in exophthalmic goiter cases is due commonly to cardiac failure, general exhaustion, precipitated by gastrointestinal crises and rarely to pneumonia. Remember there are no emergency goiters.

One can safely remove from three-fourths to five-sixths of a gland, depending on age of individual, etc. Simple goiters that recur are mostly due to fact that a great deal of adenomatous tissue has been left. Mayo cures about 70 per cent with 10 per cent recurrences.

In conclusion, too great care cannot be taken in going over these patients. Know your patient and the condition you have to deal before you undertake an operation.

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THE INTERPRETATION OF THE BASAL METABOLIC RATE IN TOXIC GOITER.*

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The influence of the thyroid gland upon the basal metabolic rate has been fairly well established, but its value to the surgeon depends upon its interpretation. The estimation of the basal metabolic rate to the trained observer is not hard but its interpretation is sometimes quite difficult and to be made only in conjunction with a thoro knowledge of the patient's physical condition.

The basal metabolic rate is measured in calories and represents the amount of heat produced with the minimal amount of cell activity. All cell activity requires oxygen and it has been definitely proven that the amount of heat produced varies directly with the amount of oxygen consumed. As thyroxin secreted by the thyroid gland is the chief agent in control of minimal cell activity, any variation in the amount secreted or in its character is manifest in the amount of oxygen consumed. Thus oxygen consumption during minimal cell activity and consequently the basal metabolic rate figured from this would be an accurate index of the rapidity of thyroxin absorption, if there were no other factors that influence cell activity.

It has been found that exercise and digestion have a marked influence but these can be excluded by proper supervision. Febrile diseases and leukemia produce a rise, while most wasting diseases, not accompanied by fever, a fall in the rate but these can be excluded by proper examination. With care it is possible to exclude all the other factors that influence the rate in the study of thyroid lesions.

Experimentally it has been shown that thyroxin produces the same symptoms manifest in toxic goiter except the exophthalmos. Clinically Plummer has shown that one-third of a milligram of thyroxin raises the rate one per cent in patients weighing one hundred fifty pounds. He found that it required a few hours after the injection of the thyroxin for the rate to begin its rise and that the high point was reached about ten days later. In myxedema, when a sufficient amount is given to raise the rate to normal, it requires a period of thirty days before it comes back to its former level, while clinically a period of sixty days elapses before the patient reaches the former state.

From Plummer's work we may assume, first, that cell activity as indicated by oxygen consumption responds quickly and proportionately to the amount of thyroxin thrown into the circulation; second, that thyroxin either produces a prolonged effect upon the cells or is excreted or destroyed slowly; and, third, that clinical evidences persist for some time after activity shows a decrease in the amount of thyroxin.

A study of our cases of toxic goiter appears to conform to the conclusions drawn from Plummer's work with myxedema. Grouping the cases together certain observations were made. (1) The rise in the basal metabolic rate is the first evidence of hyperthyroidism. (2) As the disease increases in intensity the rise in the basal metabolic rate leads the clinical manifestations. (3) The more severe the onset and the more severe the course the higher the rate will be in proportion to the symptoms. In severe cases the variation will be great, while in mild cases the rate and the symptoms will run almost parallel. (4) When the disease reaches its height there comes a time when the rate runs about parallel with the symptoms. (5) As the disease begins to improve, the rate drops more rapidly than the symptoms. (6) In cases having frequent exacerbations the rate may be normal or below normal in the interval, altho the symptoms are present continuously. The following case illustrates this point.

Case No. 2704. Referred by Dr. J. C. Ghormley. Female, age 40. Married. American. Patient states that five years ago while pregnant the thyroid gland enlarged, her heart became rapid and she had some difficulty in breathing. Two years ago she had a severe attack. At this time the eyes were prominent. She had a moderately severe attack a few months ago and there have been several mild attacks at other times. At no time has she been free from symptoms since the first attack.

Present complaint. Rapid heart, tires easily, soreness between shoulders, constipation, and gas in the stomach and bowels.

Family history. Negative.

Examination. Patient is undernourished, nervous and anxious about her condition. Pulse 138 and regular. Skin shows numerous brown pigmented spots.

Head. Eyes prominent with palpebral offices increased in width. Tonsils show some enlargement.

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*Read before the Thirty-First Annual Meeting of Washington State Medical Association, Tacoma, Wash., Sept. 16-17, 1920.

Neck. Diffuse enlargement of the thyroid gland. The gland is firm.

Chest. Lungs negative. Heart, first tone at apex roughened.

Abdomen. Lax. Tenderness in epigastrium and lower right quadrant.

Genitalia. Right broad ligament thickened. Perineum lacerated. Rectocele.

Nervous. Fine tremor. Deep reflexes exaggerated.

Basal metabolic rate 12 per cent below the average.

Diagnosis. Exophthalmic goiter in stage of remission.

Treatment. Thyroidectomy.

Microscopic examination showed that the acini contained colloid material. There were papillomatous masses extending into the acini in places.

Pathologic diagnosis. Parenchymatous goiter in the stage of remission.

Following the operation the patient returned home and Dr. Ghormley later reported that she had clinically recovered.

(7) Permanent lesions may be produced by the action of the thyroxin upon the central nervous system, heart muscle, tissue back of the eye ball or elsewhere and thus, after the thyroid secretion has become normal either as the result of operation or resolution, the patient may still be irritable, have a tremor, a defective heart, a protruding eye or other persisting manifestations. A patient may even develop myxedema because of overdestruction of gland substance and at the same time have some persisting symptoms of toxic goiter due to permanent lesions. These persisting lesions may be likened to a badly mangled arm. The bone heals, the soft parts heal but the function of the arm may remain below par or be nil as the result of the injury. So in some cases of toxic goiter, after the goiter has been cured the symptoms persist because of the irreparable lesions. Formerly these cases were looked upon as surgical failures but we now know that they were not the fault of surgery but were due to the failure on the part of the patient or his physician to seek surgical intervention before permanent lesions had been produced.

The following case serves to illustrate this condition.

Upon coming to the office she gave a history of the first attack of toxic goiter at twenty and the next at thirty-four. She had a persistent tachycardia, tremor and irritablness. Recrudescence at fifty-four. At this time we removed nearly the entire right lobe and isthmus after a preliminary ligation of the superior thyroid arteries. Marked improvement followed the operation but there was a recurrence after about five months, following which we removed the left lobe almost entirely. The patient felt better after the second operation than she had for years. She gained her former weight back and looked as well as any woman of her age but she still has the tremor, rapid heart and is irritable. Since getting the metabolic apparatus we have determined her rate and find that it is persistently below normal. Upon giving her thyroid extract her old trouble begins to return.

Taking the findings of Plummer and the observations we have made on our toxic goiters together, the following conclusions may be drawn as to the value of the basal metabolic rate in thyrotoxicosis, assuming, of course, that all other causes for a variation in the rate have been excluded.

(1) The basal metabolic rate is an indespensable index of the activity of the thyroid gland.

(2) An increase in the secretion of thyroxin is followed by an early rise in the rate.

(3) A rapidly rising rate or a rate that is higher than the symptoms would indicate usually means a rapidly secreting thyroid gland and greater severity than is seen with a slowly rising rate or a rate followed closely by the clinical manifestations. Rapid absorption following massage or surgical intervention must be excluded.

(4) A stationary rate after a rise usually means that the rate has reached its zenith but not necessarily so.

(5) A falling rate indicates a decreasing activity of the thyroid gland. The falling rate does not follow the activities of the thyroid gland as closely as does the rising rate and neither is it followed as closely by the symptoms.

(6) The variation between the falling rate and the symptoms is indicative of the disease thru which the patient is passing. The more severe the disease the greater the variation.

(7) A normal or subnormal rate after an attack of thyrotoxicosis accompanied by symptoms of the disease is indicative of injury produced by the thyroxin. Often the injury is permanent and the symptoms persist for life, altho the patient has recovered from the goiter so far as the secretion of thyroxin is concerned.

(8) A fluctuating rate after an attack of thyrotoxicosis is indicative of active pathology in the thyroid gland and exacerbations of more or less severe grade are to be expected.

From the standpoint of prognosis it makes a great deal of difference whether the rate is rising or falling. With a rising rate a guarded prognosis must always be given. If the rate is below twenty-five per cent above the average, the disease is regarded as mild, and between twenty-five and fifty per cent the disease is considered as moderate and the prognosis good, between fifty and seventy-five per cent as severe, and between seventy-five and one hundred per cent as very severe. When the rate gets over one hundred per cent above the average, the prognosis is grave as these are the patients that die unexpectedly after even so simple an operation as the ligating of a superior thyroid artery. A falling rate gives a better prognosis than a rising rate.

The rate is divided into the same general groups in its relation to therapy. With a rate below twenty-five per cent above the average in the onset of the disease the cases should be treated medically. Between twenty-five and fifty per cent the cases will be about equally divided, the more severe ones requiring surgical intervention. The radical operation may usually be done without the preliminary ligation. In some cases, especially those that have the evidence of severe injury from hyperthyroidism, ligation will be indicated. If the rate is over fifty per cent, it is usually best to ligate the superior thyroid arteries and then wait for the rate to drop. With a rate between seventy-five and one hundred per cent above the average, the arteries should always be tied before any radical work is done. If the patient's condition is at all precarious, only one artery should be ligated at a time. If the rate is over one hundred per cent, more than one artery should never be ligated at a time and, if the patient is in a precarious condition, all surgical work is contraindicated. The patient should be given absolute rest in bed with sedatives and cardiac stimulants if indicated, until such a time as the rate begins to drop. Any surgical procedure forces thyroxin into the blood stream and to a patient in a precarious condition this added dose of thyroxin may be sufficient to produce death.

At this place I wish to enter a protest against the ligation of one artery shortly after another has been ligated or the doing of the radical operation shortly after one or both arteries have been ligated without previously determining the basal metabolic rate. As stated before, any surgical procedure forces thyroxin into the blood stream and consequently the patient's condition is usually worse for a few days even after the ligation of one of the arteries. It has been shown that the injection of thyroxin into the blood stream raises the rate and holds it up for some time. If during this period further surgical work is done, more thyroxin will be thrown into the system and death may result. A more severe reaction often follows the preliminary ligation than the final radical work, because at the time of the ligation the thyroid gland is in a state of active secretion and contains recently secreted thyroxin that is forced into the circulation by the manipulation, while by the time of the subsequent thyroidectomy the gland has undergone at least some degeneration because of the diminished blood supply and is no longer actively secreting.

Valuable as the basal metabolic rate is, it can not be taken alone for, if so taken, serious mistakes are going to be made. The basal metabolic rate can not be properly determined in a commercial laboratory like a Wassermann reaction. To be of the greatest value the rate should be determined under the observation of the clinician who has the case in charge. There are many little things that make for accuracy that would not be observed by one who had not had the case under observation.

In our work we frequently find that certain tests are unreliable and are to be rejected and it occasionally happens that we have to send patients home and have them come down on another day because some factor is interfering with the rate on that particular day. As stated before, careful observation and supervision enables one to rule these out but, if we did not have the patient under close observation and were we not familiar with her condition, we would not be able to rule out these factors. A recent case illustrates the importance of these statements.

The patient has exophthalmic goiter and when first seen had a basal metabolic rate ninety-nine percent above the average. Following the ligation of the superior thyroid arteries she showed the expected improvement. August 31, she came to the office for a metabolic determination, feeling much improved. Upon lying down on the couch she completely relaxed and when the test was made it was found to be normal. During the process of the examination she became tired and consequently somewhat nervous. After a short time another test was made and found to be fifteen per cent above the average. A little later a third test was made showing the rate had gone up to thirty-seven per cent.

A physician not familiar with the case, making but a single test, might have obtained any one of the three readings and so reporting to a clinician who had not been present at the time a wrong interpretation could have been made, but whereas in this case the patient had been under our close observation for some time we knew the factors present and were able to make the proper interpretation.

Further, a highly toxic patient upon going to a strange office to be examined by a physician who is a stranger often becomes excited and gives a rate that is entirely too high. For best results the basal metabolic rate must be made by the clinician who has examined the patient and who knows the general physical conditions.

In conclusion, from a careful study of the literature and our own cases, I think that we may safely say: (1) That the basal metabolic rate is the most accurate index to the activity of the thyroid gland. (2) That it must be considered in conjunction with the clinical symptoms in order that the proper interpretations may be made. (3) One is not justified in treating the more severe cases of thyrotoxicosis without studying the basal metabolic rate and governing the treatment thereby.

BETTER HOSPITALS IN WASHINGTON.

Prepared by the Committee on Hospital Standardization, State Medical Association.*

1. The Washington State Medical Association, thru its officers, trustees, and the committee on hospital standardization, has undertaken the task of improving hospital conditions in the state. This applies to every hospital in every city or county of the state. From many different towns come requests for aid in this work and upon the State Association has fallen the burden of outlining a policy which may be followed by all hospitals.

2. The part that each physician in the state must play in this great forward movement must be clearly set before each individual member of the profession. After this has been done the hospital management in the various hospitals of the state may confidently expect the cooperation of the attending men.

3. This movement is not for you alone. It is a general movement thruout this country and Canada. It originated within our profession; it was inaugurated by the profession; it must be carried on with the cooperation of all members of the profession. Unless we do this, we cannot expect the hospitals to withstand the constant attacks of the osteopaths, chiropractors and other cults who are each day demanding more and more earnestly that they be permitted to share in the use of our hospitals. They have not created, or even fostered, a spirit of cooperation in the upbuilding of our hospitals, yet, unless we assert ourselves, they will secure equal advantages with us in the use of these institutions. This might not be so serious, were it not for the commercialism which is the fundamental defect in all cultisms. There is no altruism in any of them, no love of humanity, no spirit of charity toward the suffering public. Upon these three has medicine been founded. This very movement only demonstrates how deeply rooted in our profession are these three principles.

4. The duty of our profession is to turn our scientific minds from the daily routine of the practice of medicine and apply our talents toward the defense of our sacred institutions. There is no man too busy to give of his time and energy to this great task. No one wants to keep anyone out of any hospital who will conform to the standards of our profession, but he must conform to these standards. If commercialism exists, it must be stamped out. If unqualified men are practicing in fields to which they are not adapted, they must take counsel with themselves and decide wherein they are deficient, seek to better themselves and then go forward. Under the proposed system many new places will be created, new laboratory directors are needed and proper compensation must be secured for them. Radiography belongs to the medical profession. In every town in the state, where several physicians are practicing, one man should make one or the other, or both of these his special field and the other men should support him. The profession *must* unite. Personal differences *must* be cast aside and the members of the profession *must* work in harmony one with another. The care of the charity and semicharity cases must not be given over to lay organizations. It is our duty to control this great field of activity. Many of these cases will be the middle class of tomorrow and some the upper class of later periods. We must not overlook this opportunity in the complexity of present day practice.

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*George W. Swift, M. D., Chairman, Seattle, Wash., Feb. 10, 1921.

5. The plan outlined by the King County Medical Society, which is incorporated in this communication, may be used in large hospitals. In smaller ones of fifty beds or less a simpler form of case records may be used, but the general plan can be carried out.

REPORT OF THE COMMITTEE.

STAFF ORGANIZATION.

The Subcommittee on Staff Organization recommends the following plan.

Section I.

There shall be a standardization committee appointed by the management of each hospital, consisting of seven medical men whose chief aim shall be to secure and maintain high standards of medical and surgical efficiency, and thus promote to the maximum the welfare of the patients, students and nurses coming under its influence, and whose duty shall be to see that the rules on standardization shall be observed.

Section II.

No individual shall be eligible for membership on the standardization committee of more than one hospital.

Section III.

Vacancies in this committee shall be filled by appointment by the management of the hospital from names recommended by the remaining members of the committee.

Section IV.

The Standardization Committee shall hold a meeting at least once a month for the purpose of discussion and for the consideration of matters concerning the medical welfare of the hospital.

Special meetings may be called at any time at the request of the Sister or Superintendent in charge, or three members of the Committee on Standardization of said hospital. Four members shall constitute a quorum.

Section V.

Each committee shall have a chairman and secretary.

The secretary shall keep a book of records of meetings, attend to all correspondence, notify members of all meetings, keep a record of members present, and all other matters pertaining to the organization.

Section VI.

The Standardization Committee of each hospital shall be responsible to the management of the hospital.

Section VII.

The chairman of the Standardization Committee of each hospital shall constitute a Central Standardization Committee to further the interests of all hospitals represented.

RULES GOVERNING VISITING PHYSICIANS OF ALL HOSPITALS.

1. All material removed from a patient by operative procedure is the property of the hospital, and shall remain in the hospital laboratory for a sufficient time to allow the pathologist to make a permanent record of same.

2 Every physician and surgeon practicing in this hospital must enter his prescriptions and directions for the nurses in the book provided for the purpose, and attach his signature.

3. Physicians sending patients to this hospital must be known to and approved by the hospital management before their patients will be admitted.

4. Physicians unknown to the management must receive the approval of the Committee of Standardization before patients under their care will be admitted.

5. The hospital management and Standardization Committee reserve the right to withdraw their approval at any time.

6. No surgical operation shall be performed without the consent of the patient or his legal representative.

7. The internes on duty, and any member of the Standardization Committee may be present at any or all operations.

8. All members of the Committee on Standardization and all visiting physicians and surgeons must subscribe to the following declaration:

> "I hereby promise upon my honor as a gentleman, that I will not, so long as I am permitted to practice in Seattle hospitals practice division of fees in any form; neither by collecting fees for others referring patients to me, nor by permitting them to collect fees for me; nor will I make joint fees with physicians and surgeons referring patients to me for operation or consultation; neither will I in any way directly or indirectly compensate anyone referring patients to me; nor will I utilize any man as an assistant as a subterfuge for this purpose."

9. All visiting physicians and surgeons will be required to see that a permanent record of all their cases is on file in the hospital when the patient leaves: this record to include personal history and examination, diagnosis, record of operation and findings, convalescence and final result.

A complete history and tentative diagnosis in writing must accompany patient to operating room, and no operation shall be permitted unless this rule is complied with, except in cases of emergency.

10. Unprofessional and unethical conduct, and violation of rules of this hospital shall constitute sufficient reason for withdrawing the privileges of the hospital. Any member, against whom the foregoing charges have been preferred, shall be notified of such charges, and shall have the opportunity of appearing before the Standardization Committee in his own defense before final action upon charges shall be taken.

11. A majority vote of the Standardization Committee shall be necessary to withdraw the privileges of the hospital from any attending physician.

12. It shall be the duty of the attending physicians to aid and direct the educational advancement of its internes and nurses to the fullest extent. Neglect to comply with the above shall be brought to the attention of the Standardization Committee at its regular meeting.

13. Duties of internes and their relation to the hospital and its attending physicians shall be prescribed and controlled by the hospital management and Standardization Committee.

14. Anesthetics.

a The following equipment shall be available in the operating room for anesthesia.

(1) A wooden wedge.
(2) A mouth gag.
(3) An artificial air way.
(4) A tongue tenaculum or forcep.
(5) A long curved hemostat or sponge holder.
(6) A supply of small sponges.
(7) Two masks, one large and one small, in good condition.
(8) Anesthetic agents of first quality.
(9) A hypodermic syringe for immediate use with usual stimulants at hands.
(10) A small tank of oxygen ready for instant use.

b All persons administering anesthesia shall be approved by the Standardization Committee of the hospital.

15. Patients admitted for major operations, except emergencies, should reach the hospital on or before 4:00 o'clock p. m. on the day preceding operations, preferably at 2:00 o'clock p. m.

REPORT OF COMMITTEE ON LABORATORIES.

It is the sense of the committee on laboratories that a method should be devised whereby the patient in the hospital can have unrestricted laboratory facilities available in order that scientific diagnosis and treatment may be pursued as accurately as possible. We recognize that the men efficient in laboratory work are engaged in a specialty, requiring much preliminary training, and that we must device such facilities with due regard to their scientific and financial interests. At the same time it must be possible to have all laboratory methods available to every hospital case at a minimum expense.

The committee recognizes the laboratories must be under at least two big subdivisions: Clinical and pathologic and x-ray.

The Clinical and First Pathologic work can best be undertaken by providing a laboratory with access to the operating room. Each operative specimen goes immediately to the laboratory for diagnosis and pathologic record. The clinical facilities in the laboratory must provide for handling urine, sputum, gastric analysis, and bacteriologic, serologic and hematologic work. We recommend the employment by the hospital of an expert director of the laboratory, who shall be a graduate in medicine. The director of the laboratory may employ a trained technician on a salary, who is resident in the hospital and is capable of doing ordinary routine clinical work.

Th committee further urges the establishment in each hospital of a morgue and the careful study of the dead by staff pathologist, who shall do all autopsies. We recommend that the various undertakers be interviewed in order to obtain their hearty cooperation in obtaining the highest percentage possible of permissions for autopsies.

The x-ray work in the hospital can best be conducted by having the expert supervision and direction of a roentgenologist who shall take the responsibility for plate diagnosis and do the flouroscopy. He may employ a resident technician who should have sufficient training to be able to do routine plate work, and to look after technical and chemical procedures. The roentgenologist shall be a member of the staff at the hospital and devote such time as is necessary to the work.

As a means to accomplish this plan we suggest that the total expense of the laboratories may be blanketed by an additional charge to the average hospital day sufficient to cover costs of such service, in order that we may do away with itemizing such services to the patient.

These are two evident objections to this scheme:

1. Unnecessary laboratory work.
2. Diagnosis made for the casual two or three day patient, who is sent in to avoid just fees for laboratory work.

The committee suggests that these objections may be overcome by requiring, (1) A written tentative diagnosis from the physician before laboratory work is undertaken; (2) An itemized laboratory bill to the patient for such work at the current prices, if the hospital stay is less than eight days.

Such a plan would place the physician and the patient in a position where they can get the best facilities for diagnosis in the hospital and at a minimum expense. It provides that the hospital become a big laboratory for careful study and treatment of the sick. It assures the best that can be derived from modern laboratory methods, and places them at the disposal of all hospital patients.

(A) THE STANDARD RECORD.

We have taken up and discussed the records now in use by the Vancouver General Hospital, the American College of Surgeons, the U. S. Army records and private records now used by several members of our society, in an effort to arrive at a uniform record, simple in its application to each branch of medicine and surgery, yet complete enough to afford all the necessary information. Your subcommittee adopted, as best fitting the above requirements, the following records.

These records would include:

(1) An Introductory Sheet to the Hospital.

This to contain: Name, address, date, responsible relative, his or her address, tentative diagnosis, hospital orders on admission, registration number of doctor, doctor's name.

(Every patient on entering the hospital should have a card, which contains the symbol number, the name of the doctor and name of institution for the purpose of using this number in all correspondence to the hospital.)

The introductory sheet should, whenever possible, accompany the patient to the hospital. In the event that the patient is introduced to the hospital by the physician over the telephone, an introductory sheet must be filled out by the clerk in the hospital office.

(2) Personal history, physical examination and laboratory sheet.

(3) An ear, nose and throat sheet, being contained on the reverse side.

(4) Eye sheet.

(5) Operative sheet including an anesthetic record.

(6) Pregnancy sheet with the reverse of the sheet a labor record.

(7) New-born sheet.

(8) A progress record.

(9) A graphic chart containing pulse, temperature and respiration.

(11) A summary card. (Provision should be made on the summary card for indicating the record has been inspected.)

(12) A follow-up record. All records should be in form A, B, C, D, etc., and available to doctors for office use as well as for hospitals.

(B) METHOD OF OPERATING THE RECORDS.

I. By the Physician.

The physician is held responsible for the record of the history, physical examination and tentative diagnosis of the patient in all cases within 72 hours from the time the patient enters the hospital. The physician is further held responsible for a description of the operation, operative diagnosis, some note on progress at least once in five days, final diagnosis, and the complete filling out of the summary card before the patient is discharged from the hospital. We suggest that a typical printed form for physical examination be distributed among the members of the society, thus encouraging a uniform history.

II. By the Hospital.

(a) All clinical records of the patient are to be kept not by name but by the initials of the patient, a serial number and the name of the physician, and that this same serial number be maintained for each subsequent admission. The name of the patient, with serial number and name of the physician to be kept in a separate book in the hospital office.

Each case that enters the hospital has a minimum of 8 sheets.

(1) Introductory sheet.

(2) Personal history, physical examination and laboratory findings.

(3) Progress.

(4) Treatment and nurses' record.

(5) Graphic chart.

(6) Operative record.

(7) Folder, with list of all sheets printed on outside, and stamped with the initials of patient, symbol and physician's name.

(8) Summary sheet and follow-up record.

Each one of these sheets must contain the initials of patient, symbol and name of doctor.

Any special sheet must also contain the initials of patient, symbol and name of doctor.

(b) The medical director of the laboratories will be responsible for all laboratory reports being placed in the charts.

(c) The floor nurse will be held responsible for the nurses' charts.

(d) The hospital management will be held responsible for the proper index and catalogue compilation.

III. Plan for Filing.

(a) The Filing of the Introductory Sheet or a Special Card.

Because the introductory sheet or special card carries the name of the patient, the symbol and the doctor's name, it is the key to the whole system of records from the hospital standpoint. This is to be filed alphabetically in a loose leaf binder which would depend for size on the size of the record. As they accumulate they can be extended by subdivision of the alphabet into as many binders as is needed for many years. The back should contain a list of all the sheets stamped with the initials, symbol and name of physician at entrance and the summary card the same list, so that the filing clerk can check up on the physician, on the summary card and see that all sheets issued have come back and appear in the folder.

(b) Filing Case Records.

This is done in a folder with initial symbol and physician's name.

(c) The Filing of the Summary Card.

This must be filed separately from the case record sheet so that if the folder is lost the summary card is there and vice versa. It should be cross-filed by four separate cards, by the disease to the complication, to the symbol, to the doctor, thus.

1. The disease—the complication—the symbol—the doctor's name.
2. Complication — disease — symbol — doctor's name.
3. Symbol—doctor's name—complication—disease.
4. Doctor's name—symbol—complication—disease.

Each doctor can then go to the hospital and have his case records readily accessible.

(d) Filing Additional Information.

It shall be the duty of the custodian of the records to send out once a year for five years, a request to the patient, as far as possible for the present condition, such information to be recorded in the follow-up record.

(C) THE RECORDS ARE ACCESSIBLE TO

(1) The attending physician.

(2) The hospital superintendent.

(3) The advisory board of physicians.

(4) The new attending physicians in case of a change of physicians.

No record is to be removed from the hospital.

(D) NOMENCLATURE.

We consider that it would be advisable to adopt a standard of nomenclature of disease.

CONCLUSIONS.

(1) Each subcommittee report has been thoroly discussed by the general committee and accepted as a part of the general report.

(2) The case records as adopted cannot be considered as too brief or too cumbersome. The essential thing if properly noted will be found while unessential, tho possibly valuable data, have not been insisted upon.

(3) The problem of laboratory facilities, arrangements between the medical directors and the hospitals, the fees to be charged and, finally, the effect upon the private laboratories, were questions which required a great amount of study. The committee feels that it has not the right to dictate the terms upon which physicians shall work in the hospitals; nor to solve the expense problem which additional laboratory work will necessitate; our duty as we see it is to outline what necessary laboratory facilities shall be at hand and suggest that medical men competent to direct a laboratory shall be obtained, and that such work shall be within the reach of all patients and demanded in such cases, where it is necessary for the proper management of the case.

(4) Rules and regulations governing the conduct of routine measures under the proposed plan will not work a hardship on anyone and yet will offer an opportunity for the medical profession to better conditions day by day. We will all be under the same rules and each may know exactly what he can and what he must do.

(5) The publicity propaganda is in a certain sense foreign to our sphere of activity, yet we feel that without proper publicity we cannot expect the public to support us in this undertaking.

(6) Members of the committee have interviewed the superintendent of each hospital and have, in every instance, been assured of hearty cooperation in the standardization movement.

(7) The committee desires to thank the members of the society who have aided us in this work with suggestions, many of which are incorporated in this report.

From this report one can easily see that the plan submitted offers at least a practical solution for either the largest or the smallest hospital in the state. The success of the plan was never in doubt in the minds of the committee, but met with considerable opposition on the part of those who did not understand the workings of the plan. This was to be expected because of the various reports which had in some manner gained circulation, and which have since proved groundless.

For instance, the question of "staffs" at the various hospitals seemed to be the greatest objection to the plan. Many of the physicians who are practicing in Washington have had experience with the so-called "closed hospital staffs", as manipulated in the larger hospitals of the East. This experience has in some instances been of such a nature as to cause alarm at the suggestion of any kind of staff for the Western hospitals. As a matter of fact, the closed and open staff is not an issue in hospital standardization, but is a question which must be decided by the management of each hospital.

The advantages of a closed staff are considered by many men to outweigh the disadvantages, but it appears that there is one tremendous advantage of the open staff hospital which cannot be disregarded under a plan as outlined above. Every safeguard is placed around the patient to that *any* physician taking a patient to such a hospital must conform to the standard adopted at that hospital. If you close the staff in the various hospitals, where are the men who are not assigned to any hospital going to take their cases? Naturally they will select the small hospitals that are not standardized and over which there is no control. This would be especially true of the young men just out of college and a new man coming to the city to locate. These men in most instances are well qualified and should be admitted to the best hospitals in the city. Under a closed staff arrangement such men would be forced to take their cases to any hospital where they could be received.

This is the chief reason why we believe that no hospital should be closed, even in hospitals privately owned by physicians. The mere fact that other men may take cases there at any time would have a tendency to keep the hospital up to the highest standards. What then can we substitute for the closed staff and yet secure all the advantages that are claimed for the closed staff?

STAFF ORGANIZATION.

(A) EXECUTIVE STAFF.

Beginning with the executive committee, which has been designated the standardization committee under the King County plan, we would have from seven to ten men whose duties would consist of organizing the various departments in the hospitals such as the laboratory, the case records, operative technique, and general rules for the visiting physicians. This committee would outline the general policy to conform to the subjects as given above.

(B) CLINICAL STAFF.

A second committee consisting of physicians representing the general surgical, general medical, the laboratory and the special departments such as ophthalmology and oto-laryngology, orthopedic, pediatrics, neurology, obstetrics, gynecology, urology, reconstruction and such other specialties as may be deemed advisable, should be appointed by the executive committee. This committee may be known as the "clinical staff", the duties of which would be to arrange for a monthly clinic to be held in the hospital.

(C) CLINICAL MEETINGS.

The county medical societies furnish the scientific programs for the medical men of each county. The hospitals can very easily furnish the clinical programs. At these meetings the case record should be the preeminent feature and should be thoroly discussed before any other discussion of the case has taken place. The previous history of the patient, the physical examination, the tentative diagnosis, the reason for operation, if any has been performed, the findings at the time of the operation, a discussion of what has been done and the laboratory report to verify the diagnosis, and finally a complete progress record of the subsequent history of the case should be included in the case record. Following a discussion of the case record itself, the particular points of interest in that case should be discussed and then the record completed for filing. The clinical meetings will be of great advantage to every member of the visiting staff.

THE VISITING STAFF.

Every physician who takes cases to the hospital should be enrolled on the visiting staff. Each should comply with the rules, governing the admission to the staff, and the card signed by the physician should be examined by the executive committee and approved by them.

THE PROBATION LIST.

A list of the names of those who are not well known to the executive committee, or who have not attained sufficient skill in surgery to perform major operations should be kept in the superintendent's office and whenever these men schedule major operations it would be advisable to have some surgeon of broad experience present during the operation. As soon as these men demonstrate their ability, their names would be taken from the probation list. This would accomodate all new men coming to the larger cities and would not drive them to the hospitals that are not standardized.

OUTLINE FOR THE PRESENT YEAR.

The work of standardization of hospitals has progressed so far in the State of Washington that with a little further effort an excellent report can be made at the meeting in September.

It is to be hoped that the attending physicians in every hospital in the state will immediately proceed to discuss this plan, or some similiar plan and to proceed with an organization for their hospital.

It is not necessary, however, that any hospital should delay organization until members of the committee visit it. With a little study of the plan as outlined above it can be put into effects if one or two men in each hospital proceed at once to call a meeting for the purpose of organization.

A general inspection of all hospitals of the state will be undertaken during the months of June, July and August. It is to be hoped that a very substantial gain can be reported at the annual meeting. Only those hospitals which meet the minimum standards will be listed in the report.

NORTHWEST MEDICINE
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Devoted to the Interests of the Medical Profession of the Pacific Northwest

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MAY, 1921.

EDITORIAL

PRELIMINARY ANNOUNCEMENT OF THE TRISTATE MEETING.

The tristate meeting will be held in Portland, Thursday, Friday and Saturday, June 30, July 1 and 2. Arrangements are being made on such a scale that no one can afford to miss it who can arrange to be present. An invitation to the profession of the Northwest includes the newer physicians who may not have resided long enough in their cities to become members of their state associations. All should understand that this is to be a meeting for the benefit of all the physicians of Washington, Oregon and Idaho.

The entertainment committee has arranged for a reception on Thursday afternoon. That evening there will be a President's reception, time and place to be announced later. On Friday there will be a luncheon at the medical school and county hospital grounds. In the afternoon will be a lawn fete and auto trip. The evening will be devoted to a general entertainment at the Oak's Amusement Park. On the afternoon of Saturday there will be a special trip over the Columbia highway, including an entertainment, big feed and barbecue.

The following papers will be presented which will be supplemented by others, to be announced later.

(1) Ununited Fractures. Lantern slides. Dr. Dean Lewis, Chicago.

(2) Preoperative and Postoperative Modifying Conditions affecting Hare-Lip, Cleft Palate and other Plastic Surgical Restorations. Lantern slides. Dr. George V. I. Brown, Milwaukee.

(3) Plastic Repair of Acquired Defects and Deformities of the Face. Lantern slides. Dr. Vilray P. Blair, St. Louis.

(4) (a) Surgical Treatment of Gastric and Duodenal Ulcers. (b) Treatment of Chronic Infections and Chronic Osteomyelitis by Aluminum Potassium Nitrate. Lantern slides. Dr. Alfred A. Strauss, Chicago.

(5) Atrophic Pyelonephritis. Landern slides. Dr. Braasch, Rochester.

(6) Local Anesthesia. Lantern slides and motion pictures. Dr. Robert E. Farr.

(7) Medical Organization. Dr. Frederick Green, Chicago.

(8) League for Conservation of Public Health. Mr. Sullivan.

(9) Hospital Standardization. Dr. Musgrave, San Francisco.

(10) Hospital Standardization, by representative of the American College of Surgeons.

(11) Brain Surgery. Dr. William Sharp, New York City.

(12) Treatment of Asthma. Dr. Hurwitz, San Francisco.

(13) Suprapubic versus Perineal Prostatectomy. Lantern slides. Dr. Frank Hinman, San Francisco.

(14) Milder Disturbances of Endocrine Functions. Dr. J. R. Brown, Tacoma.

(15) Pathology, with Clinical Applications. Dr. Frederick Epplen, Spokane.

(16) Goiter Heart. Dr. P. V. von Phul, Seattle.

CHRISTIAN SCIENCE ATTACK ON PUBLIC HEALTH.

Washington is now experiencing an assault on public health on the part of christian scientists, similar to that which occurred in California and Oregon last year, in both of which the people won at the poles and preserved laws for protection against disease. The movement to invoke the referendum on Senate Bill 180, now in full swing, already has had the effect of mobilizing the forces which guard the public health. The attempt of the christian scientists to nullify wise and well-tried health regulations has aroused deep resentment in many quarters. Many organizations, including churches, schools, civic societies and associations devoted to promoting the well-being of the people, have joined the physicians of the state in demanding the referendum. There is every indication that the movement will be successful and that the vicious measure will be submitted to the people at the next general election, when it will be overwhelmingly defeated.

This bill, which was forced thru the legislature under the "organization" whip wielded by Senator Howard Taylor, of King, is designed to exempt children of christian science parentage from any physical examination in the public schools. The effect of the measure is to take from the other children the protection which under existing laws is guaranteed them by the health authorities. Under its provisions a diphtheria carrier may spread infection thruout the school room before the school physician or nurse may examine him. Until symptoms of a contagious disease become so marked that they cannot escape attention, there can be no physical examination of these specially exempted children, as the act sets forth that the doctor or nurse must "believe in good faith" that the suspected child is suffering from a contagious or infectious disease before an examination may be made. Representatives of christian scientists have announced their responsibility for this measure, and are now out in the open in this fight against the people of the state, instead of concealing themselves as in the past under the cloak of a "protective league."

The referendum movement is serving the excellent purpose of reminding the public that it was the medical profession that led the fight to protect the purity of the water supply in many communities; that it was the medical profession that insisted upon an inspection of the dairies which supply milk to the larger cities, in order that the children might be saved from tuberculosis; and that it was the medical profession that advised the inspection of bakeries and other establishments, where food is prepared for public consumption. To these wise precautions is due the fact that Washington enjoys an enviable reputation as a healthful place to live. If the referendum on senate Bill 180, which is a protest against the nullification of the health regulations designed to control contagious diseases in the public schools, served no other purpose, it would be worth while if it brought to public attention the noble achievements of the medical profession in preventing disease.

The questions involved in the referendum movement are fundamental. It is a battle between forces which deny the existence of disease and which scoff and deride the work of scientific medicine and the forces which rely upon science and common sense to shape public health policies. In this fight the medical profession of Washington cannot afford to be defeated. The increased prestige which would come to the christian scientists if, thru the apathy or indifference of the doctors they could score a victory, would result in an intolerable condition. Every doctor should do his share and work unremittingly until there is no longer any doubt of success. It is a fight which must be won.

ADOPTION OF STANDARDIZATION.

The only objects for which hospitals exist are to relieve human suffering and to aid in recovery from disease. Whatever promotes the accomplishment of these ends will magnify the blessings of the hospitals and make them more efficient in attaining the reasons for their existence. If these objects are not obtained in a given hospital, its presence in the community is of doubtful benefit and the justification of its existence is questionable. The plans for the standardization of hospitals, of which so much has been said and written during the past two years, is to promote this condition of efficiency. This work has been accomplished in some hospitals of the cities of the Northwest, where this standardization has been put into effect. Committees in charge of the work hope to extend its benefit to those institutions where it has not yet been adopted. On another page will be found a description of the plans worked out by the committee of the Washington Association. Publicity is herewith given to the details of its labors, with the hope and expectation that the governing bodies of the hospitals of the state may profit thereby in their plans for putting these measures into effect.

NATION'S HEALTH.

Modern Medicine, which has been published for over two years, has this month changed its name to *Nation's Health*. This is much more suitable, because the magazine does not deal so much with clinical and curative medicine as with subjects pertaining to health progress, industrial and social health problems. It is stated that hereafter health groups wll be the central theme, such as workers in a plant, students in schools, in institutions or citizens of the community. Special attention will be paid to industrial health and efficiency, community health, institutional health and all questions coming under these headings. It is proposed to feature the organization of health workers, including physicians, sanatoriums, health officers, etc. One will be able herein to read the latest discussions of industrial medicine, state medicine and similar topics which are now occupying so much space in the medical magazines.

NEW ADVERTISEMENTS.

The attention of our reads is called to the following list of new advertisements which appear for the first time in the issues of last month and this. The California Sanatorium for the Treatment of Tuberculosis (page 6) is located in Belmont, Calif. The Oaks Sanitarium for treatment of Tuberculosis (page 7) is at Los Gatos, Calif. The Colfax School for the Tuberculous (page 21) is located at Colfax, Calif. Alexander Sanatorium (page 6) for treatment of nervous mental diseases is at Belmont, Calif. Paso Robles Hot Springs (page 7) at Paso Robles, Calif., is under the direction of Dr. G. W. Tape, for many years well known to the profession of Oregon and

Washington. Mountain View Sanitarium, of Salt Lake City (page 20), is for treatment of nervous and mental ailments. Byron Hot Springs (page 20), "The Home of Health", is at Byron Hot Springs, Calif. The Orange Crush Company, of Chicago, (page 19) manufacturers a line of fruit juices. The Winkley Artificial Limb Co. (page 17) is the well known firm of Minneapolis. The Fitwell Artificial Limb Company (page 21) is located in Salt Lake City. Dr. Joseph Aspray (page 21), of Spokane, announces his specialty as a roentgenologist.

MEDICAL NOTES

OREGON.

Portland Academy of Medicine held its annual meeting April 14. An address on eclampsia was given by Dr. Ross W. McPherson, of New York, one of the attending physicians of the New York Lying-in Hospital.

Health Officer Sued. Dr. George Parrish, Portland Health Officer, was last month the victim of the filing of a suit by a citizen who refused to obey quarantine regulations. This refractory citizen handed out some very uncomplimentary language to the health officer in revenge for being confined. He declined to be released by having a culture taken from the throat and agreeing to obey quarantine regulations.

Hospital to be Enlarged. St. Anthony Hospital, at Pendleton, is to have an addition built at cost of $200,000 under direction of Sisters of St. Francis. It will provide for 80 patients.

Dr. L. H. Mott has located for practice at Astoria. During the war he served as Captain in the Medical Corps. Part of his service was in France and later in Coblenz, with the army of occupation.

Dr. M. W. Ross, of Portland, sustained a sprained wrist and bruises last month when his motorcycle side-car, in which he was riding, turned turtle when turning a corner.

WASHINGTON.

Sanatorium to Be Opened. It has been determined that Grays Harbor County is under the necessity of opening its tuberculosis hospital at Elma. It will function at least for the remainder of this year and next. This probably means continuous operation.

Masonic Hospital Proposed. The building of a Masonic Hospital in Seattle is under consideration. The sixty-five Masonic bodies of that city are favorably inclined to the project and committees have been named to consider plans and locations.

Hospital to Be Opened. Since the government has established the buildings at Fort Walla Walla as one of the permanent rehabilitation hospitals, necessary alteration have already begun. It is expected that the hospital will be open for patients at an early date.

New Hospital Management. Dr. O. R. Starr, of American Falls, Idaho, has purchased the hospital at Stanwood which has hitherto been under the management of Dr. W. H. Jacobson.

Hospital Purchased. Dr. Victor Piro, of Seattle, has purchased the Chelan Hospital and has established himself there for practice.

Hare-Lip and Cleft Palate Clinic. Dr. G. V. I. Brown, of Milwaukee, will hold this clinic in Tacoma the first two weeks of July. Physicians having patients with these or other facial defects are invited to communicate with Tacoma Clinic.

Lectures in the East. Dr. H. V. Wurdemann, of Seattle, is East on a lecturing tour. He will deliver addresses this month on injuries and diseases of the eye at the Army Medical School at Washington and the Academy of Medicine, New York.

Seattle Obstetrical and Gynecological Society held its first meeting since the war on March 18. For the ensuing year Dr. F. M. Carroll was elected president, Dr. S. V. Hooker, vice president, Dr. T. Tarland, secretary-treasurer.

The Washington State Nurses Association will hold its annual meeting at Wenatchee May 5-8. It is expected that fifty to seventy-five members will be present. Plans will be made for the national meeting which will be held in Seattle in 1922.

New Health Officer. Dr. C. S. McCown, Grandview, has been appointed health officer, in place of Dr. W. R. Tymms, resigned.

New County Physician. Dr. L. L. Bull, of Ellensberg, has been appointed health officer of Kittttas county, to succeed Dr. H. J. Felch, resigned.

Appointed Health Officer. Dr. A. Morefield, of Wapato, was last month appointed city health officer.

New City Health Officer. Dr. F. T. Hyde has been appointed health officer at Port Angeles, to take the place of Dr. Carmichael, resigned.

Closed by Smallpox. The school at Thorpe was closed last month by the county health officer on account of an outbreak of smallpox.

Dr. John P. Anderson, of Spokane, for three years state commissioner of health, has been appointed surgeon in U. S. Public Health Service with rank of major.

Dr. B. L. Jones, of Walla Walla, has been appoint- Captain in the U. S. Public Health Service and been assigned to duty at Tacoma.

Dr. G. S. Murphy, formerly of Amarillo, Texas, has located for practice at Pasco.

Dr. C. L. Hawk, who has practiced recently in Mount Vernon, has moved to Sedro-Wooley.

Dr. D. B. Harvison, recently of Index, has located for practice at Palouse.

Dr. C. P. Mickelson, formerly of Ephrata, has moved to Renton for practice.

Dr. A. G. Woodward who has practiced for sometime at Wenatchee, has moved to Entiat.

Medical Weddings. Dr. T. E. Douglas, of Seattle, was married last month to Miss Helen Calhoun of that city. Dr. H. C. Ellsperman, of Blaine, was married to Miss Melba Begelins, of Seattle.

IDAHO.

City Hospital Proposed. At a meeting of the Commercial Club of Troy last month the question was discussed of building a city hospital. It was stated that a need for such an institution was felt in the town.

State Medical Examination. Examination for license to practice medicine was held last month at Boise under the direction of the Bureau of License of the Department of Law Enforcement. Eighteen applicants applied for license, twelve by reciprocity and six for examination. Dr. F. W. Mitchell, of Blackfoot, was elected President of the Board; Dr. L. E. Hanson, of Wallace, Secretary. The other members are Drs. F. A. Pittenger and J. L. Stewart, of Boise, and Dr. Floyd Wendell, of Southern Idaho.

Canyon City Medical Association, which recently held a meeting at Nampa, elected the following officers for the ensuing year: Pres., Dr. George Proctor; Vice-president, Dr. M. S. Fink; Secretary-treasurer, Dr. G. L. McLellan.

New Society Organized. Last month the Idaho Falls Medical Society was organized, with Dr. C. M. Cline, president; Dr. H. D. Spencer, vice-president; Dr. A. R. Soderquist, secretary-treasurer.

New County Physican. Dr. R. J. Sutton, of Paris, was last month appointed county physician of Bear Lake County, in place of Dr. H. H. King, resigned.

New Coroner. Dr. Gore, of Reubens, was last month appointed Coroner of Lewis County in place of Dr. J. F. Gist, resigned.

Nurses Must Have Certificates. According to a bill passed by the recent legislature nurses are required to procure certificates from the Department of Law Enforcement before they are entitled to practice. The law makes provision, beside registered nurses, for licensed, trained, certified or graduate nurses.

Dr. P. G. Scallon, recently of Coeur d' Alene, has located at Clarkston.

Dr. E. Taylor, formerly of Kamiah, has located for practice at Nez Perce.

OBITUARIES.

Dr. Robert Clarke Yenney is dead and the medical profession and citizenry of his home city, Portland, Oregon, and of the Pacific Northwest are the poorer as a result. His place is one that will be hard to fill. From the time that he located in Portland, shortly after his graduation from the University of Pennsylvania in 1893, until the hour of his death Sunday, April 24, he was a conspicious figure in spite of the possession of an unusual degree of modesty and a dislike of attracting attention or publicity of any kind. His friends were legion, his enemies few and far between. To know him well was to be numbered among the former. Perhaps few in Portland or in any other city have stood as well with other physicians as he. A well known physician recently said that, if a hundred Portland doctors were ill with some medical disorder, more than half of them would have called upon Dr. Yenney for help and advice, several times as many as would be likely to call upon any other single man, and this for the reason that his advice was earnest, sincere and based upon an unusual clinical sense. If he did not know what was wrong, he was first to declare his weakness and to call upon some one else who in his opinion might know better. If he came to a positive conclusion, it was based upon careful thought and study of the case, albeit, such study was in the main clinical rather than laboratory and this notwithstanding that as a pathologist his knowledge was far superior to that of the average physician.

From the beginning of his professional career, teaching attracted him and, tho some phases of it irked him, he was often heard to express the wish that he could devote his entire time to the instruction of students. For many years he was Professor of Pathology in the University of Oregon Medical School, from which position following the retirement of Dr. Bell he was advanced to the post of Professor of Medicine. For many years he taught at the North Pacific Dental College. At medical meetings he seldom took part in the discussion unless called upon, when he invariably said something worth hearing. In the small private medical clubs, of which he was a member and where according to the rules he was obliged to participate in discussions, other members waited eagerly to hear what he would have to say and for the reason that his mind, always keen and incisive, instantly dissected away the husks of the argument and passed directly to the nucleus. Almost invariably the pathologic phase of the subject was in his mind and few who heard him discuss heart lesions will ever forget his masterful analyses of the morbid anatomy of this vital organ, from disease of which, by one of the curious freaks of nature, he died. How strange it seems that the organ of which a physician knows most so often is the one which, thru its failure, causes his own dissolution!

Dr. Yenney twice served the United States Government, the first time during the Spanish-American War and the second time when, in charge of Hospital Unit Number 46, he went to France, where he became a Lieutenant Colonel and where his devotion to duty was no less marked than was characteristic of him in other places. Perhaps the greatest tribute of affection that can be paid to him was that rendered by the privates of the unit not less, however, than the tributes of those whom he served as physician. On one occasion a young private was ill with pneumonia. The mother was much disturbed and fearful of the consequences. She made inquiries to learn the facts and then her face lighted up with faith and hope. She said, "my son is ill but I have no fear. He is under Dr. Yenney's care and Dr. Yenney will look out for him." Such was the abiding faith of those to whom he ministered. Tho he served well and faithfully, he hated war and its trappings and many of his most intimate friends never saw him in uniform. Not for him the pomp and vanity which the garb of the soldiers signified. And so, altho among the first to wear the uniform of his country, he was among the last to use it on parade.

Loyalty to his friends, honesty in his opinions, hatred of sham, dislike of ostentation, ability as a teacher, fatherliness to students and younger men were supplemented by an extraordinary keen sense of humor of a searching but never mischievous type. It was his inveterate habit to tease and joke but such was the character of his humor, such was so often its value, that he became known among a large number of his friends as the "Abraham Lincoln of the medical profession." In build and ruggedness of physique he was not unlike that great hero. Careless and indifferent in dress, seemingly awkward, he was yet possessed of unusual gifts of repartee and he was indeed timorous who challenged him to combat of this kind. Others might lie awake and plan out how best to overthrow him but would find their thrusts met and turned aside and, almost before they knew it, the joints in their armor pierced by his shafts, tho oddly enough when he won, as he almost invariably did, his defeated antagonist usually felt honored by the combat and laughed with others at his own discomfiture.

Dr. Yenney held many positions of trust during his life. He was State Health Officer of Oregon for about five years, President of the Portland City and County Medical Society, President of the Oregon State Society and a member of several clubs and lodges.

A real man, full grown in mind and body, has left us. To him a mighty tribute was paid by the host which attended the funeral services held in the Elks Lodge by the members of that order, the veterans of Hospital Unit Number 46 and the City and County Medical Society. After the great room was filled a far larger number stood outside for an hour or more in the pouring rain waiting to do him final honors and when his casket, preparatory to removal to Walla Walla for final services, was brought out by the military pallbearers and placed on the caisson guarded by a company of regulars from Vancouver Barracks. Heads were bared, notwithstanding the unkindliness of the elements, in reverent tribute to the departed friend. Dr. Yenney is gone but he lived not in vain. Like the beautiful garlands of flowers that were entwined about his bier, so are the garlands of memory entwined in the hearts of those who knew and loved him. He will live in pleasant and kindly recollections and will remain an inspiration and an example of manliness, of nobility and of those other fine qualities which, united, make the really great physician.

Dr. D. W. King, of Wenatchee, died at Seattle, April 6, after an illness of several years duration. He was a prominent citizen of his city. At one time he was President of the Wenatchee Commercial Club. Besides practising medicine he took an active interest in business and political affairs in his city.

Dr. H. A. Littlefield, formerly of Newberg, Ore., died at Tucson, Ariz., of tuberculosis, April 15 He was 46 years of age. He was a son of the late Dr. H. R. Littlefield, of Portland. He was a veteran of the Spanish American War and was a Captain in the medical corps during the World War. He was gassed during the campaign in France and contracted tuberculosis as a result.

Dr. W. E. Murray, formerly of Spokane, Wash., died in Los Angeles, April 9. He was a pioneer of Lincoln County. He was a graduate of Ellsworth Medical College, of St. Joseph, Mo.

Dr. L. W. Sims died at Kalama, Wash., April 2 from heart disease. He was 70 years of age and had practiced in Kalama for nearly forty years. He represented Cowlitz County in the state legislature for two terms.

REPORTS OF SOCIETY MEETINGS

KING COUNTY MEDICAL SOCIETY.

Pres., H. G. Lazelle, M. D.; Secty., B. T. King, M.D.

The regular meeting of the King County Medical Society was held April 4, 1921 in the Masonic Club Rooms, Seattle, Wash., Dr. Lazelle in the chair. Minutes of the two previous meetings were read and approved.

CLINICAL CASES

Dr. W. Kelton presented a case of fracture of clavicle, showing a splint he has devised, called the axillary crutch for fractures of clavicle.

PAPERS

The Heart in Exophthalmic Goiter. By Dr. P. V. von Phul. He discussed symptoms of this disease, citing history of a case presenting characteristic symptoms, giving treatment used.

Dr. J. M. Blackford discussed the paper telling of experiments on goats with the use of thyroxin. Dr. John Hunt laid stress on the importance of graphic tracings of the heart to determine their susceptibility to psychic shock.

Aortitis. By Dr. G. A. Dowling. He discussed the various pathologic changes that occur in the walls of the aorta. He spoke at length of the changes produced by syphilis.

Dr. Kenelm Winslow discussed the paper, giving pain, cough, dyspnea and increased area of dullness as the most common symptoms.

Dr. J. H. Snively stated that the size of the aorta is subject to change in the normal individual. Dr.

A. R. Robertson spoke of the senile aorta as being larger than normal. Dr. Davidson asked if an accentuated second sound is of great significance.

Cardiac Arrythmia. By Dr. R. H. Lyons. He described the nodes of the heart and spoke of the significance of the various arrythmias.

Drs. Fick, Haskell, and von Phul discussed the paper.

Dr. H. C. Schumacher was elected to membership.

Dr. Knott read a report of the committee on physicians' telephone exchange. On motion the report was accepted.

Dr. Swift spoke on the referendum on House Bill 180.

A special meeting of the society was held April April 15.

Dr. Oscar Thompson, of Canton, China, spoke on conditions in China and discussed pathologic conditions encountered in his work there. He described the religions, resources and development of the government. He gave statistics on 65,000 operative cases, and stated that advanced pathology was present in 75 per cent. He presented numerous interesting lantern slides of pathologic conditions.

SPOKANE COUNTY MEDICAL SOCIETY.

Pres., J. D. Windell, M. D.; Secty., O. M. Rott, M.D.

The regular meeting of Spokane County Medical Society was held at Spokane, Wash., April 14, 1921.

Dr. Lambert presented cases of thromboarteritis obliterans and Raynaud's disease.

Dr. Morgan read a paper on "The Application of the Benedict Respiration Apparatus," presenting his conclusions, showing the availability and practical application, clinical calorimetry and its usefulness in disturbances of the thyroid gland.

Dr. Langworthy gave a demonstration of his motor bone saw, the structure of which gives a more accurate control of the saw than is possible in the instruments now in use. Laminectomy is easily performed, as well as amputation of the femur. Drills, reamers ,dowel cutters and other tools are part of this new outfit.

CORRESPONDENCE

EXTERNAL ALVEOLECTOMY.

San Francisco, Cal., April 7, 1921.

To the Editor:

The March 1921 number of **Northwest Medicine** contained an article on "Importance of the Surgical Removal of Teeth, or the Work of the Minor Oral Surgeon", in which the author quotes from a paper by Dr. William Lete Shearer, M. D., D. D. S., in the National Dental Journal for July, 1920.

Dr. Shearer summarizes the operation that he describes as follows: (a), Novocain nerve block anesthesia; (b). The teeth are removed, the mucoperiosteum is reflected up to the root ends of the tooth sockets, the external alveolar plate of bone is taken off, the diseased tissue is attended to under the eye; C. The bone is smoothed, leaving no jagged edges, the lingual, buccal, gingival mucosa trimmed and sutured with horse-hair; D. The sutures are removed in from four to five days.

In all essentials this operation is precisely the same as that which I have been describing and advocating ever since early in the year 1915 in:

Pacific Dental Gazette, March, 1915, May, 1915.
Transactions of the Panama-Pacific Dental Congress, August, September, 1915.
California State Journal of Medicine, November, 1915.
Pacific Dental Gazette, February, 1917.
American Journal of Surgery, August and September, 1917.
Journal of the California State Dental Association, November and December, 1917.
American Journal of Surgery, March, 1918.
New York Medical Journal, March 1918.
The Journal of the National Dental Association, June, 1918.
Journal of the California State Dental Association, June 1918.
American Journal of Surgery, February, 1919.
Medical Review of Reviews, February, 1919.
The Dental Summary, June, 1919, July 1919.
The Journal of the California State Dental Association, July, 1919.
California State Journal of Medicine, September, 1919.
The Southern Medical Journal, September, 1919.
Illinois Medical Journal, August, 1920.

Josef Novitzky, D. D. S.
209 Post Street.

BOOK REVIEWS.

Edited by Kenelm Winslow, M. D.

Keen's Surgery. Volume VII. By Surgical Experts. Edited by W. W. Keen, M. D., L. L. D., Hon. F. R. C. S., Eng. and Edin., Emeritus Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia. Octavo of 855 pages, with 359 illustrations, 17 of them in colors. Philadelphia and London; W. B. Saunders Company, 1921.

This volume, with its companion number VIII, will complete a system that will serve as a record of modern surgery from the year 1913 to 1919. They make available for the surgery of peace the lessons of the great war. This volume has twenty-four chapters, and seventeen or more are the product of the war experiences. Much of our military surgery can be applied to the surgery of civil life, and the chapter by Gibbon on surgical technic is excellent. His description of the treatment of infected wounds by these later methods includes the use and value of various antiseptic solution, such as debridement and epluchage. Dakin's solution is appraised, and the rising popularity of dichloramin-T in oil, bipp and picric acid solutions are noted.

Adami's chapter on inflammation is supplementary to his previous contributions. Schamberg records recent advances in our knowledge of syphilis. He strongly opposes the use of concentrated solutions of salvarsan in his treatment. Nothing better has been written. Too much praise cannot be given the contributors for their painstaking and fruitful efforts and the editor for his initiative and zeal in putting before the profession at such an early date the latest and most comprehensive view of the lessons of the war. FORBES

A Text Book of the Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D., Professor of Medicine Graduate School of Medicine, University of Pennsylvania, Fourteenth Edition, Thoroughly Revised with the Assistance of John H. Musser, Jr., M. D., Associate in Medicine, University of Pennsylvania. Octavo of 1284 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company. 1920, Cloth $10.00 net.

The fourteenth edition in twenty-three years is fully equal to any of its predecessors and is one of the great medical acquisitions of which we may well be proud. It is a question whether one is not better off in acquiring new editions of such standard works than in undertaking the great outlay for medical publications in many volumes which soon become obselete. Among topics which are amplified in this volume are typhus fever, yellow fever, cerebrospinal meningitis, pneumonia. icterohemorrhagic spirochetosis, diabetes, pellagra, pernicious anemia, exophthalmic, goiter, focal infections, mumps, measles, hemolytic jaundice, hemolytic anemia of pregnancy, Banti's disease, asthma, and hay fever. Also there is much new matter on diagnosis in heart disease. Among wholly new subjects are bronchial spirochetosis, streptococcic pneumonia, trench nephritis, disordered action of the heart, chronic aortitis, interstitial emphysema, epidemic encephalitis, oxycephaly, wood alcohol poisoning and botulism.

Under diagnosis in encephalitis the author states that the acute onset and fever rule out syphilis and brain tumor. In many cases of encephalitis it is impossible to get a history of fever, especially at the time the patient is first seen. All the newer tests for hyperthyroidism are described and the work as a whole is very admirably brought up-to-date. WINSLOW

Diagnostic and Therapeutic Technic. A Manual of Practical Procedures Employed in Diagnosis and Treatment. By Albert S. Morrow, M. D., Late Lieut.-Colonel, M. C., U. S. A., Attending Surgeon to the City Hospital, New York City, etc. Third Edition, Entirely Reset, Octavo of 894 pages, with 892 illustrations, mostly original. W. B. Saunders Company. Philadelphia and London: 1921. Cloth $8.00 net.

No more practically valuable book could be offered the medical profession and it is too well known to require any extended notice. There appears to be no description of the glucose or Goetz test for thyrotoxicosis in the text. In describing the position for spinal puncture the upright and lateral recumbent positions are recommended. In the lateral position it is, however, advisable to make the patient lock his hands under his knees. The usefulness of first percussion over the kidney and a description of duodenal aspiration after Lyon's method are omitted. The especial use of fractional gastric analysis in achylia is not noted. The section on aspiration in pericardial effusions is the most complete that has come to notice and deserves especial commendation. As a whole the book is well up-to-date and no work could be more useful in every day practice. WINSLOW

The Oxford Medicine. By Various Authors. Edited by Henry A. Christian, A. M., M. D. Hersey Professor of Theory and Practice, Harvard University, etc. And Sir James Mackensie, M. D., F. R. C. P., LL. D., F. R. S. Consulting Physician to the London Hospital, etc. In Six Volumes. Volume III. Diseases of the Digestive System, Kidneys, and Ductless Glands. 828 Pp. Cloth, Loose Leaf Binding. Oxford University Press. London and New York, 1921.

To this volume the following are contributors: Boggs, Bradford, Christian, Frothingham, Horrax, Pincoffs, Plummer, Pratt, Rehfuss, Riesman, Rolleston, Sippy and Stockton. Bradford and Rolleston are the only two English writers.

The article by Rehfuss contains the most complete and admirable description of examination of the stomach contents to be found in such a textbook and will repay careful study. The monograph by Rolleston on diseases of the gall-bladder and bile ducts is also excellent. Under chronic cholecystitis the author notes the occurrence of mild dyspepsia with arthritis, phlebitis, neuritis, myocarditis or coli bacilluria. He might have added headaches and muscular rheumatism. The frequency of infections of the urinary tract with B. coli the reviewer feels is not sufficiently or commonly enough appreciated, the gall-bladder being the focus of infections. The sex, age and condition are not noted as characteristic but the writer would propose this alliterative maxim that a female, fat, forty and flatulent should at least suggest cholecystitis.

The volume as a whole is admirable but one is a little disappointed in the too great brevity of some of the articles. The idea has evidently been to present on broad and purely clinical lines the latest conception of medical diseases, omitting details which should be familiar to the profession, but the matter of treatment and differential diagnosis is often slighted or omitted. The work in its entirety is a masterly contribution to medical literature and one can only regret that there is not more of it. WINSLOW.

A Text Book of Pharmacology and Medical Treatment for Nurses. By J. M. Fortescue-Brickdale, M. A., M. D., Capt. R. A. M. C. Formerly Lecturer on Pharmacology, University of Oxford, etc. Cloth 392 pp. $10.00. Illustrated. Oxford University Press, London and New York, 1920.

This work is beautifully gotten up as to paper, print and illustrations, many in colors. The attempt has been made to give a scientific account of the action of drugs in as simple and lucid a manner as possible and the result is very gratifying. The explanation of ionization is a case in point, and the description of the bundle of His is another. Materia medica has been omitted and no preparations or doses are mentioned in the book, which seems rather a pity. The latter part is devoted to treatment of specific diseases and this seems to be

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conservative but, altho drugs are of course mentioned, the method of using and dosage are not included. This is a superbook for the supernurse and, with her now superpay, should be superserviceable. WINSLOW

Rational Treatment of Pulmonary Tuberculosis. By Charles Sabourin, M. D., Medical Director of the Durtol Sanatorium, Puy de Dome, France, Authorized Translation from the Sixth French Edition. Cloth 440 Pp. $3.50. F. A. Davis Co., Philadelphia, 1921.

In this work may be found detailed treatment for many symptoms and complications which occur in the course of pulmonary tuberculosis. In a general way the treatment advised is extremely conservative and little benefit is derived by the author from any specific medication, even tuberculin. No mention is made of artificial pneumothorax except a few lines as to its useful effect in severe or recurring cases of hemoptysis. The book is very sensible and is the outcome of a large experience, altho it may disappoint those who like to imagine they can secure more striking relief from some forms of special treatment. The author relies chiefly upon hygienic treatment with special therapy for special symptoms as they arise.

WINSLOW

Diabetes. A Handbook For Physicians and Their Patients, by Philip Horwitz, M. D. 27 Illustrations and 2 colored plates. 196 Pp. Cloth, $2.00. Paul Hober, New York. 1920.

Herein is to be found a description of treatment for different types of diabetes according to the modern method popularized by Joslin. The author is perhaps inclined to attribute more etiologic importance to so-called intestinal intoxication, as shown by excessive indican production, than is usual. There are many diet lists and very complete descriptions of various tests for sugar, blood sugar, acetone, diacetic and acid, etc. WINSLOW

The Systematic Treatment of Gonorrhea in the Male. By Norman Lumb O. B. E. Late R. A. M. C. Specialist in Venereal Diseases and Officer-in-Charge 39 and 51 General Hospitals, B. E. F. Second Edition, Cloth 123 pp. $1.75. Lea and Febiger. Philadelphia and New York. 1920.

This book contains a very clear description of the routine treatment found successful in many thousands of cases of gonorrhea during the Great War. Irrigations with potassium permanganate in the earliest stages and vaccines of gonococci and staphylococci constitute the routine treatment in acute gonorrhea. Treatment of all stages and complications of the disease is given in great detail and the enormous number of patients treated enables the writer to draw sound deductions as to the best procedures. WINSLOW

Surgical Aspects of Dysentery. Including Liver Abscess. By Zachary Cope, B. A., M. D., M. S., Lond., F. R. C. S. Eng. Surgeon to Out-patients, St. Mary's Hospital. 157 pp. $5.00. Oxford University Press, London and New York, 1920.

The author had an extensive experience with dysentery in the Mesopotamia campaign. This volume is based on the Hunterian Lecture. Chapters appear on surgical complications of dysentery, dysenteric appendicitis, amebic hepatitis and amebic abscess of the liver. The latest is here presented on the treatment of these various conditions, together with complications involving other organs. Its perusual is well worth the attention of one called upon to treat the various forms of dysentery.

SMITH

Medical Notes. By Sir Thomas Horder, M. D., F. R. C. P. Physician with Charge of Out-Patients of St. Bartholomew's Hospital. 112 pp. Oxford University Press, London and New York, 1921.

This little volume contains many valuable suggestions, collected from the author's notes made in the outpatient room and wards. A valuable feature is its brevity. In a few words are given the essential factors in the diagnosis of cardiac bruits, pulmonary tuberculosis and diseases of the different organs. It is a handy book of real value.

WEST.

Compend of Diseases of the Skin. By Jay Frank Schamberg, A. B., M. D., Professor of Dermatology and Syphilology, Graduate School of Medicine, University of Pennsylvania. 314 pp. 6th Edition, Revised and Enlraged with 119 illustrations. $2.00 P. Blakiston's Son & Co., Philadelphia, 1921.

This well known book is intended as a rapid reference work and key to the study of dermatology. No disease is described in detail, but essential points are given. In this latest edition the treatment of syphilis has been rewritten and new chapters added on some of the rare diseases.

Nursing in Eye, Ear, Nose and Throat Diseases. By A. Edward Davis, A. M., M. D., Professor of Diseases of the Eye in the New York Postgraduate Medical School and Hospital; and Beaman Douglass, M. D., Professor of Diseases of the Nose and Throat in the New York Postgraduate Medical School and Hospital. Second revised edition. 346 pp. $2.50, with 32 illustrations, F. A. Davis Company, Philadelphia, 1920.

This volume is not a treatise, but a guide for the intelligent care and nursing of diseases of the eye, ear, nose and throat. The various treatments and methods are given so clearly and with such exactness that the attendant will display a maximum of efficiency, if the details herein described are followed. Much of value can be obtained from its perusual by the attending physician. Antisepsis and asepsis have received particular attention.

SMITH

General Surgery. Practical Medicine Series, Vol. II. Edited by Albert J. Ochsner, M. D., F. R. M. S., LL. D., F. A. C. S. 620 pp. $2.50, The Year Book Publishers, Chicago, 1920.

This book contains an excellent review of the year's surgical literature. Nothing of importance seems to have been left out and the completeness with which the articles of the year have been extracted is very pleasing. Intended for the specialist, it is equally useful for the surgical specialist, recalling to mind many points which he wishes to remember. The book is gotten up in the usual style and maintains the general excellence of this series. FORBES

NORTHWEST MEDICINE

The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah
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PORTLAND HOSPITALS.

Whenever a physician visits a city one of his first queries concerns its hospitals. Questions of this character are multiplied during the session of a medical gathering. Since a large attendance of medical men is anticipated at the tristate meeting at Portland this month, it seems eminently fitting to present at this time a description of the city's hospitals. This is the explanation of the following review of these institutions. It is accompanied by a sketch of the medical school which is intimately associated with the hospitals and the medical profession of Portland. It will be observed that several new hospitals are in the process of construction. An attempt has been made as far as possible to include views of the existing institutions. In carrying out this purpose the buildings are presented as they exist at this time. Those under construction give evidence of hospitals to be completed at a future date which will be an ornament to the city and a credit to the promoters of up-to-date hospitals. We feel that Portland is to be congratulated on the number and character of its hospitals, which should stand as an example to other cities of the Northwest, in the way of providing for the necessities of the sick and the disabled.

ST. VINCENT'S HOSPITAL.

St. Vincent's Hospital was established in 1875 by Mother Joseph, this being the oldest hospital in the city and the pioneer in the Pacific Northwest. She was one of the foundresses of the Western Mission of the Sisters of Charity of Providence. The hospital was then located at the corner of 12th and Marshall Streets. The old building is still standing and is used at a hotel.

In 1892 the first unit of the present institution was started on the Cornell Road at the head of Hoyt Street, and was completed in 1894. In 1910 the new annex was completed, adding over 100 beds to the capacity of the hospital, as well as supplying six surgeries, complete x-ray rooms and laboratories. The hospital now has a capacity of over 400 beds, with an average daily attendance of nearly that number. There is a contagious unit in a separate building.

During the first year of the existence of the hospital 320 patients were treated. In 1920, 8243 patients were treated, not including 510 infants. Since the organization of the hospital 130,252 patients have been treated within its walls and the number of free days to the poor since its organization totals 352,609. The present training school was established in 1892.

Some of the first surgical work in Oregon was performed in this institution. The first staff of physicians numbered among its members many well

ST. VINCENT'S HOSPITAL.

known surgeons, including the late Dr. K. A. J. MacKenzie, Dr. A. C. Smith, and Dr. Arthur Dean Bevin of Chicago, Ill., who began his professional career in Portland. The patients of all qualified physicians are admitted for treatment, regardless of creed or religious belief.

The hospital has been given a class "A" rating by the American College of Surgeons, and has always put in every facility for high grade service. The management rests in the hands of the Governing Board, consisting of some of the Sisters and Drs. Ernest F. Tucker, A. C. Smith, James F. Bell, E. A. Sommer, J. A. Pettit, and Richard Dillehunt.

GOOD SAMARITAN HOSPITAL.

The Good Samaritan Hospital was founded by the Rt. Rev. B. Wistar Morris, Bishop of Oregon and Washington Territory. In 1873 he bought from Dr. Glisan and Captain Flanders a portion of the Couch estate, amounting to three and one-half acres, west of 21st and between M and O Sts., to be used for the erection of an hospital and orphanage. This venture had an auspicious beginning, as the bargain was consummated on "St. Luke's Day", the money being paid on, and the checks and receipts bearing the date of, October 18, 1873. There is a floating legend that the good Bishop had to "blaze his way" thru the brush when he went to stake out the purchase, tho it was stated that it would be "easy of access when the street improvements are completed." In 1874 more land was secured, so that the total amounted to four and one-half acres, lying between 21st and 23rd, and N streets.

The Bishop's appeal for funds proposed to raise a building fund of $5,000 for immediate use. Among the original donors are found the names of many of Portland's prominent citizens, also the Episcopal churches of Portland and other cities. The corner-stone, enclosing numerous articles, papers, etc., was laid with suitable ceremonies, late in the afternoon of Ascension Day, May 14, 1874, and by July of 1875 the building was nearly completed and a matron was secured.

The hospital was opened October 9, 1875, and the first patient admitted the 10th. The report for the first two months was five sick men in the hospital, and eight children in the orphanage. A new ward for women, fitted up by the ladies of Trinity Church, was opened in January, 1877. The first advertisement of the hospital appeared in the Oregon Churchman for February 22, 1877, with Bishop Morris as President. Dr. C. C. Strong was the attendant physician, and Drs. Wilson, Glisan and Ghiselin were on the staff, and Mrs. Cornelius, matron.

The following from the Bishop's address in 1878

GOOD SAMARITAN HOSPITAL.

shows how hard it was to reach the hospital during the preceding winter. "By the fencing of the surrounding property, access to the hospital has been very difficult for the past year, and in the winter time the long and circuitous road to it was almost impassable to any ordinary vehicle, and a very terror to patients and physicians. One of the staff, Dr. W. H. Saylor, often told about letting down bars, while on his way to make daily visits to the hospital. However, in the face of these difficulties the report shows that from January 1 to November 1, 1878, there were 120 patients, the receipts were $4,105.60 and the expenses $3,992.24. During the winter of 1878 and '79 the hospital was closed for a time awaiting the grading of new roads. But by June the streets were properly graded and paved, and the hospital was reopened in September.

In the autumn of 1880 the Bishop secured a graduate of St. Luke's Hospital, New York, "Sister Mary," to take charge of the hospital, and another nurse. January 16, 1881, they arrived and took charge. In 1883 the orphanage was closed and this portion of the building became available for hospital uses. This year a training school for nurses was begun with two pupils. Sister Hannah, who came with Sister Mary, resigned during the year and Mrs. E. J. Wakeman was placed in charge and for twenty years continued its faithful and beloved superintendent.

When the Missionary Jurisdiction of Oregon was organized as a Diocese in 1888, the control of the Good Samaritan Hospital was vested in a corporation, founded in accordance with the laws of the state and known as the Board of Hospital Trustees of the Diocese of Oregon. It consisted of three clergymen and three laymen, the Bishop being ex-officio chairman. The first board was the Rev. Thomas L. Cole, The Rev. W. R. Powell, Dr. S. E. Josephi and Dr. George F. Wilson. In 1896 two more members were added, the Rev. J. E. H. Simpson and Mr. L. B. Cox,

The first addition to the original part of the hospital was made in 1899, increasing the capacity about twenty-five beds. In 1890 the training school was organized, the first in the Northwest, Miss Emily L. Loveridge, a graduate of Bellevue, taking charge. It opened with six student nurses, and in 1892, after a two years course, twelve trained nurses were graduated. In 1891 the next addition was made, increasing the capacity by thirty ward and room beds for patients, and also providing accommodations for fourteen nurses. The first brick portion of the hospital was the Lewis wing, which was erected in 1899. In 1902 the nurses' home was begun and two floors completed. In 1905 was built the Northwest wing, containing the Couch Surgery. In 1909 was erected the middle portion of the hospital as a memorial to Bishop Morris, containing a complete administration building, also a chapel which is a special memorial to the Bishop. Mrs. Wakeman resigned in 1905 because of failing health. Miss Loveridge was appointed her successor, and Miss G. M. Welsh, one of the school's first graduates, was made superintendent of the training school. In 1910 Miss Welsh was made assistant superintendent and Miss R. M. Jolly superintendent.

There are now more than thirty endowed beds, and various other endowment and bequest funds,

EMANUEL HOSPITAL.

but it is in need of still larger funds. In its first year, 1875-6, the hospital cared for 51 patients; in 1900 there were 1,402; in 1910, 4,374; in 1918, the year of the influenza, 8,955. The number has not fallen much short of that during the past two years, as the report for 1920 shows 8,345 patients.

Plans for the new wing to take the place of the old frame building, recently torn down, have been accepted and architects are at work on the same preparatory to inviting bids for its erection. With its additional equipment, it is estimated that the capacity of the hospital will be about doubled. While the Episcopal Church has been chiefly responsible for the development of the hospital, there is no distinction made as to race, religion or color, and a very large proportion of the service rendered is charitable.

SELLWOOD GENERAL HOSPITAL.

We will not close this brief sketch without reference to the long and faithful services of Miss Emily L. Loveridge, who has been connected with the hospital for over thirty years, for half of that time as its most efficient superintendent; also to those who have so ably supported her during all that time. We would also pay tribute to the devotion and fidelity of Dr. S. E. Josephi, who has served as trustee more than thirty years, and much of that time as its self-sacrificing treasurer.

EMANUEL HOSPITAL.

Preparatory work for the establishment of this hospital was begun in 1910 by Rev. C. J. Renhard, pastor of the Immanuel Church, of Portland. In 1912 the Emanuel Charity Board was incorporated under the laws of the State of Oregon, as a charitable organization. It continues the hospital under the control of the Columbia Conference of the Evangelical Lutheran Augustana Synod, of North America. The management is vested in a Board of Directors of twelve members, elected by the Columbia Conference, to serve for three years. Only members of the Portland district are eligible on the board.

The frame building, located at Tenth and Salman Streets, was leased in 1912 and the hospital was opened in it. There were accommodations for twenty patients. In the meantime, lots were pro-

MULTNOMAH HOSPITAL.

cured at Stanton and Commercial streets. In 1915 the first unit of the present building was completed, and on the first of January, 1916, the hospital received its first patients. In 1918 a new wing was added. It has fully equipped surgery, pathologic and x-ray laboratories. It has accommodations for ninety patients and twenty-five infants. A modern nurses dormitory is under construction which will provide for seventy-five nurses.

The hospital is a charitable and benevolent institution. It has a staff of well-known physicians of Portland, but is open to the reception of patients of all physicians. In 1920 it treated 3,087 patients. There were 2,097 operations, of which 674 were major. There were 407 obstetric cases and 76 deaths.

SELLWOOD GENERAL HOSPITAL.

The Sellwood General Hospital is situated at East Thirteenth and Harney Avenue. It was organized in 1908 by Dr. John J. Sellwood with a capacity of twenty beds. In 1909 articles of incorporation were taken out and a training school for nurses established. In 1914 a fireproof addition was built, bringing the bed capacity up to sixty-two.

Since 1914, thirty-nine nurses have been graduated from the training school. During the last year 1,495 patients have been cared for. The hospital has complete x-ray, laboratory, obstetrical and surgical departments. On April 1 it was standardized according to the rules of the American College of Surgeons.

The Staff consists of V. C. Talty, Superintendent; Bessie U'Ren, R. N., Surgical Supt.; John J. Sellwood, Chief of Staff; R. S. Stearns, Vice-Chief of Staff; H. M. Page, Secretary; P. E. Hale, Arthur Johnson, T. D. Remly, L. S. Besson, R. W. Cahill, members.

MULTNOMAH HOSPITAL.

This institution is the hospital for Multnomah County. It is located at Second and Hooker Streets. It was opened for the reception of patients in 1909 under the administration of Judge Webster. Dr. E. P. Geary, county physician at that time planned the hospital and organized the first staff. At the present time it accomodates one hundred patients. It has a training school for nurses which is accredited as an A I school.

When the Medical Department of the University of Oregon acquired its new site for a medical school building, a suitable space was set aside for the construction of a new building for Multnomah Hospital. It is situated on the hill, overlooking Portland and the Willamette Valley, as beautiful and sitely a situation as can be imagined for a hospital. Its proximity to the medical school will furnish useful clinical material for the coming years. The accompanying illustration shows the new building in process of construction. The hospital has a staff of representative Portland physicians, divided into medical, surgical, eye, ear, nose and throat, obstetric, brain surgery, neurology, skin, orthopedics and gastrointestinal diseases. Dr. H. R. Cliff, County Physician, is President of the staff. Dr. O. A. Hess is assistant county physi-

PUBLIC HEALTH SERVICE HOSPITAL.

cian. Miss Emma E. Jones is superintendent of the hospital and Mrs. D. W. Young superintendent of nurses.

PUBLIC HEALTH SERVICE HOSPITAL.

This hospital is now in process of construction. The building was started twelve years ago by subscriptions for the erection of a Hahnemann Hospital. It was intended at that time to have three units and the construction was started on the single unit which is now being completed. It was constructed to the extent of walls, roofing, flooring and window casings. In March, 1920, a representative of the Public Health Service at Portland made overtures to the trustees of the foundation concerned in the construction of this unit, to obtain it for use of the U. S. Public Health Service in the care of the beneficiaries of the Government, including merchant seaman, discharged soldiers and sailors and civil employees of the government.

After several months a plan has been approved which arranged for a five year lease at a price which is sufficient to complete the construction of the building. When completed and equipped, this hospital will be modern in all respects. It consists of five floors, 200 by 50 feet. There will be administration department, pharmacy, wards for female patients, general and surgical wards, observation ward for tuberculosis cases, psychiatric wards for observation, hydrotherapy department, dental operating room, x-ray room and laboratory. and a solarium on each floor. The building is of fire proof construction thruout. All rooms have outside exposure. The capacity will be approximately one hundred sixty-five beds.

THE PORTLAND SANITARIUM.

The Portland Sanitarium was established in 1893 in a rented building at Second and Montgomery Streets. In 1903 it moved to East Sixtieth and Belmont Streets. In September, 1920, the institution was closed, and the frame building was wrecked in order to errect a modern building for its work. The first unit of the new sanitarium will be constructed this present season. This will accommodate about seventy-five patients.

The institution is owned and operated by the Seventh Day Adventist denomination. Surgical, medical, and obstetrical patients are admitted. It has been an open staff hospital, and a training school for nurses has been conducted from its beginning. It is the plan of the managers to construct a modern building, and make it a first-class institution; one that will comply with the high standards of the American College of Surgeons.

PORTLAND OPEN AIR SANATORIUM.

The Portland Open Air Sanatorium was established in 1905 thru the activities of Dr. Woods Hutchinson, well known contemporary magazine writer. At that time he was secretary of the State Board of Health and State Health Officer of Oregon. He interested Mr. A. L. Mills who in turn got together a number of philanthropically inclined citizens of Portland who subscribed money to purchase a site for a tuberculosis sanatorium. It is constructed along a modified cottage plan and comprises a central administration building with twenty-five cottages and three open air pavilions. These cottages are distributed about

PORTLAND OPEN AIR SANATORIUM.

grounds which comprise some fourteen acres of virgin pine, fir and cedar situated on a bluff about three hundred feet above the Willamette River, six miles from Portland and within four minutes of an interurban car line.

In 1912 Drs. R. C. and R. W. Matson were asked by Mr. Mills, who is President of the Board of Directors, to become medical directors and they took over the conduct of the sanatorium. The institution was reorganized, a new staff of nurses brought from the East and improvements in the institution were made and soon it was filled to capacity. Many construction changes have been made since then. Thousands of dollars have been spent for improvements, and two new buildings have been built as memorials, the Isom White Memorial, which was built by Mrs. White in memory of her husband, and the D. C. Lewis Memorial which was built by Miss Sallie Lewis and Mrs. A. L. Mills in memory of David C. Lewis. Miss Mary C. Campbell was brought from the East in 1914 to act as superintendent. Dr. Marr Bisaillon became comedical director in 1918.

The plan of treatment carried out is along the most approved modern rest, hygienic dietetic and physical lines, together with artificial pneumothorax and biologic therapy in certain selected cases.

The Portland Open Air Sanatorium is a private institution, not conducted for financial gain but incorporated under the laws of the state governing charitable institutions. The charges made are only sufficient to cover operative expenses, including nursing. The capacity is approximately seventy-five beds and two hundred eighty-five patients were treated last year.

PIERCE SANATORIUM.

This is the institution of Dr. E. A. Pierce, devoted to the treatment of cases of diseases of the chest. Its policy is to limit the acceptance of T. B. cases so far as is possible to the incipient and moderately advanced. The sanatorium property consists of twenty-three acres, situated at the upper end of the Terwilliger Boulevard, four miles from the center of Portland and at an altitude of 600 feet. Seven acres are used for sanatorium buildings, cottages, walks and grove. The main building is surrounded by broad open air porches, where the patients sleep, eat, and rest. In this building are the examination rooms, offices, treatment, recreation, diet kitchens and dining room. Adjoining this building in the grove are seven cottages, where the ambulant cases are treated. These cottages care for from two to six cases each and are of the open air type, The capacity of the sanatorium is seventy-five patients.

The farm is intensively cultivated and produces great quantities of food stuffs. The dairy is of blooded stock and quite sufficient for all needs, milch goats are raised and their milk used in suitable cases.

MORNINGSIDE HOSPITAL.

PORTLAND SURGICAL HOSPITAL AND PORTLAND CONVALESCENT HOME.

The Portland Surgical Hospital and the Portland Convalescent (Medical) Hospital have been coordinated for the purpose of forming a unit for the practice of both surgery and medicine. The Portland Surgical Hospital, located at 611 Lovejoy St., has a capacity of 67 beds normal capacity and 70 beds at its utmost capacity. The Portland Convalescent (Medical) Hospital is located at 862 Marshall St. and is devoted entirely to medical cases, including metabolic and dietetic.

Both institutions are equipped with all the modern appliances and apparatus for the practice of modern medicine and surgery. The total capacity of both institutions is about 90 beds. Enlargement of the Portland Surgical Hospital for the care of medical cases also is one of the possibilities of the future. The combined institutions are operated by the firm of Drs. Coffey, Sears, Johnston and Payne, who consititute the medical and surgical staff.

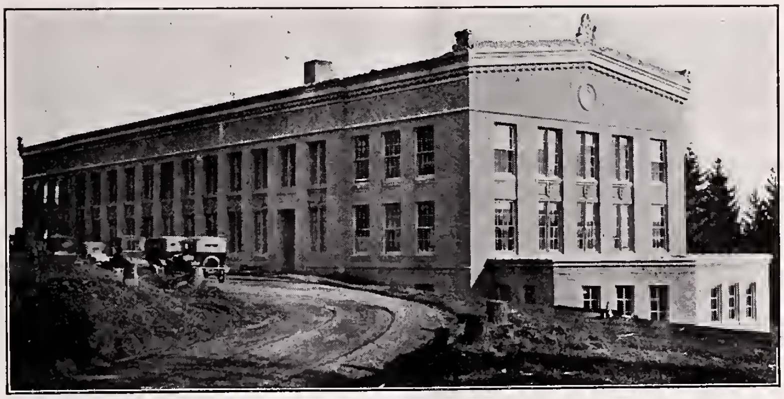
PORTLAND MEDICAL HOSPITAL.

This hospital was first established in 1911 by Miss Julia M. Parker, to take care of the medical work of Dr. N. W. Jones. It was then known as the Portland Convalescent Hospital. In 1914 it had outgrown its first quarters and was reestablished on Marshall Street, under the same name, with a capacity of twenty-eight beds. In 1916 the present hospital building was erected at 619 Lovejoy Street, with special equipment for doing gastrointestinal and metabolic work. The hospital was now reorganized under the name of the Portland Medical Hospital, and was owned and conducted by Miss Julia A. Mathews, Miss E. E. Prettyman and Mrs. H. W. Creech. The capacity of this building is thirty-five patients.

There is now under way the reorganization of the present Portland Medical Hospital with the idea of building at once a modern, completely equipped hospital of 150 beds. Offices, general clinical and pathologic laboratories, an x-ray laboratory, a special metabolic laboratory and kitchen and separate laboratories for research work will be incorporated in the building. The hospital will be divided on a modified pavilion plan so that medical and surgical patients will be entirely separate from one another at such a distance that no interfering noises may arise to disturb either group. The staff of the new hospital will consist of Drs. Thomas M. Joyce, Laurence Selling, Frank B. Kistner, Joseph R. McCool, Dorwin Palmer, Blair Holcomb, Philo E. Jones and N. W. Jones. A downtown consulting office will be maintained in the Stevens Building.

MORNINGSIDE HOSPITAL.

The present extensive plant and equipment is the outgrowth of a single building and modest equipment, organized, owned and managed by Dr.



UNIVERSITY OF OREGON MEDICAL SCHOOL.

institutional care of mental and nervous patients. Henry Waldo Coe in 1913, at Portland, for the There are at the institution at present 220 patients. Only mental patients are received, and the instituition is practically full to capacity. Under contract with the United States government it cares for the government insane patients from Alaska. It is the largest privately owned institution for the insane in America. A number of well kown alienists have in the changing years been associated with Dr. Coe in its management, tho he is now sole owner.

The plant consists of thirty acres of land adjoining the city limits of Portland upon the Base Line road, together with some twelve buildings. Dr. J. W. Luckey has been with the institution for ten years. The staff consists of Dr. Henry Waldo Coe, medical director, Dr. J. W. Luckey, chief physician, Dr. Johnston, assistant physician.

MOUNTAIN VIEW SANITARIUM.

This institution consists of two buildings, the Mountain View Sanitarium, East 68th and Division Streets, and the Waverleigh Sanitarium and Rest Cure, East 30th and Powell Streets. Mountain View has a capacity of twenty-six beds for the care of mild mental cases and alcoholics. The matron is a graduate physician. Waverleigh has a capacity of twelve beds for the care of nervous cases and the rest cure. The staff consists of Drs. W. T. Williamson, John F. Calbraith and W. Hugh Williamson.

DR. HOUSE'S SANATORIUM.

This is the private institution of Dr. William House for treatment of mild mental and nervous cases. It consists of two private residences pleasantly located in the suburbs of Portland. It has a capacity of eighteen beds.

PORTLAND EYE, EAR, NOSE AND THROAT HOSPITAL.

This hospital is located at 616 Lovejoy Street. The institution is under the immediate management of Miss Phelps. Patients are cared for by graduate nurses, there being no training school in connection with it. The hospital is a frame building of three stories. Its capacity is thirty-six beds. There are two general surgeries and two anesthetic surgeries. The institution is located in pleasant and spacious grounds. As indicated above it is for the treatment of diseases of the eye, ear, nose and throat. The staff is composed of the following: Drs. E. Dewitt Connell, Pres.; George Ainslie, Secty.-Treas.; John F. Dixon, Robert B. Karkeet, Ralph Fenton, F. A. Kiehle, Frank Kistner, Joseph L. McCool, J. N. Coughlan, R. F. Davis, H. M. Hendershott, A. E. Kidd, J. B. Roth, Chas, T. Chamberlain, Irving Lupton, I. E. Gaston, W. H. Huntington.

Beside the hospitals above described, there are numerous private institutions devoted to various phases of medical treatment. Among these are the Pacific Hospital and Surgery of twenty beds, Ferris Convalescent Home with eight beds, Coe Maternity Home with ten beds, Womans' Hospital of Portland, eighteen beds and Portland Maternity Hospital.

UNIVERSITY OF OREGON MEDICAL SCHOOL.

This institution was chartered by the Regents of the State University in 1887, at the request of a group of the leading physicians and surgeons of Portland, among whom were the late Dr. Kenneth A. J. Mackenzie, Dr. Arthur Dean Bevan, now Professor of Surgery in Rush Medical College in Chicago, and Dr. Simeon E. Josephi, the first dean. The first building was a small frame structure on the grounds of the Good Samaritan Hospital, which housed the school until a building was erected at 23d and Lovejoy Streets, in 1890. Altho the annual appropriation from the state was only one thousand dollars from the time of its organization until 1911, under Dr. Josephi's leadership the school grew from nothing to an institution which was placed in class A by the Council of Medical Education, in 1910. In 1911, thru the efforts of Dr. Josephi and his associates, the first material appropriation was made for medical education in the Pacific Northwest, the legislature providing $30,000 for the biennium. After twenty-six years of effective and untiring service Dr. Josephi resigned from the position of Dean in 1912 and was succeeded by Dr. Kenneth A. J. Mackenzie.

Under Dr. Mackenzie's administration the development was continued apace. Thru his labors there was accomplished a merger between the Wilamette University Medical School and the University of Ore. Med. School in 1913, resulting in a single college better than either had been before and supported by the alumni of both. His appeal to the executive committee of the Oregon, Washington, Railway and Navigation Company was answered by a gift from the railroad of twenty acres of land on Marquam Hill, providing a campus of exceptional beauty for the development of a great hospital and teaching center, which was Dr. Mackenzie's vision. At his solicitation the annual legislative appropriations were steadily increased and finally resulted in the construction of one of the finest laboratory buildings in the country. Dr. Mackenzie, furthermore, raised thru private donations from physicians and citizens of Portland and Oregon $25,000 for the completion of this first unit of the ultimate medical school group. Knowing the advantages and importance of close affiliation between hospital and medical school, Dr. Mackenzie urged the construction of the new Multnomah County Hospital on the campus and the county commissioners, appreciating his wisdom and vision, accepted a gift of eleven acres from the University upon which construction is under way. The result of all these efforts is a medical school in Portland which is rated among the first class, the only one north of San Francisco and West of Denver, serving the largest territory and perhaps the largest population exclusively in the United States.

During the last year the legislature has appropriated $271,000 for the Medical School, $113,000 being contingent upon an equal sum from other sources for the second building. The annual income for maintenance has been increased from $55,000 to $100,000 which enables additions to the full time teaching staff and the extension of facilities in laboratory, dispensary and clinic. A large eastern educational foundation has become interested in medical education in the Northwest and there is reason to expect material financial and moral cooperation from that source.

Plans are completed for the second unit of the school building to cost $260,000 and construction will probably begin this summer. It is further anticipated to construct upon the campus a children's hospital, a psychopathic hospital and eventually a University hospital, to accommodate which it is hoped to secure additions to the campus. The War Department has designated the Medical School as one of the ten in the United States for presenting courses in military surgery, science and tactics, and this instruction will begin next fall.

In accord with the trend toward more liberalization in education in general and toward more efficient training, the complete medical curriculum has been extended to seven years, beginning in 1922, after which time three years at the University or its equivalent will be required. More intimate coordination with all other schools of the University is going forward to their mutual advantages. The University in its general health program includes the School of Sociology, the School of Physical Education, the Extension Department and the Medical School and the Public Health Nurse Training School.

There are at present one hundred and thirty students in the school, of which number thirty are in the last two years and one hundred in the first two. The small upper classes are the result of marked decrease in matriculation during the war. After the war so great were the numbers applying for admission that it became necessary to limit the number of students in any one class to sixty, a limitation which is still in force. In the near future, however, it is contemplated to increase the number per class to one hundred because, based on the normal increase in population and on the death rate among physicians and the adequate ratio of physicians to population, the Medical School should produce at least one hundred graduates per year.

ORIGINAL CONTRIBUTIONS

DIAGNOSIS OF CHRONIC CHOLECYSTITIS.

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No common disease is more frequently puzzling than chronic gall-bladder trouble, with or without gall-stones. The writer wishes to emphasize some points in diagnosis, based for the most part on experience in private practice. A few cases will be introduced in order to bring out certain diagnostic features and facilitate their discussion. In the main, one has to differentiate more usually between duodenal ulcer, cholecystitis and renal disease in the presence of pain or tenderness in the upper right abdominal quadrant. Less frequent causes of pain in the right upper quadrant are: Dietl's crises, renal colic, intestinal colic (lead, mucous colitis), angina abdominis, appendicitis, tabes, cancer and pancreatitis. For long periods complete absence of pain may be observed in chronic cholecystitis, and flatulence may be the only prominent symptom. In one case continuous regurgitation of food after meals was the sole complaint, due to pyloric spasm, as seen at operation.

Palpation and percussion are most valuable in eliciting tenderness of the gall-bladder and increased size. But it is difficult in some cases to distinguish the tenderness of perforating duodenal ulcer from cholecystitis, or even some cases of severe renal infections. Moreover, it often happens that one may have to examine a patient repeatedly for long periods before finding gall-bladder tenderness, while in others retraction of the gall-bladder under the ribs prevents one from discovering local tenderness at all. In only one instance, in a very thin, relaxed old woman, have I been able to palpate gall-stones, and here they were as evident as if one were feeling marbles in a paper bag.

Sex is of importance since, while gall-bladder trouble is about three times more common in females than in males, the reverse is true in duodenal ulcer. Obesity is also much more frequent in gall-bladder disorder than in ulcer. Age is not of much service in distinguishing ulcer from gall-bladder disease but, in the latter, patients are more often forty or over. High and low gastric acidity are both found in cholecystitis; high acid more frequently in the early stages, low acid in the later stages, and therefore in older subjects of gall-bladder disease. Rolleston, in the latest admirable issue of Oxford Medicine, speaks of achylia as the more important in making a diagnosis of gall-bladder disease and does not mention hyperacidity. Lockwood, in one hundred cases of gall-bladder trouble, found that thirty had hyperacidity, thirty showed a normal acidity, and thirty had achylia, while in ten there was found subacidity. He also discovered that about fifty per cent of patients with achylia, between sixty and seventy, had gall-bladder disease.

Therefore, it will be seen that achylia is more suggestive of cholecystitis with advancing years. The history of ulcer is one of continuous attacks lasting for weeks, more often in the spring and fall, with intermissions of months. In gall-bladder disease the attacks are more frequently of a duration of hours or days and are likely to be associated with secondary symptoms of general or local infections, as fever, leukocytosis, "rheumatism" in the joints or muscles, "neuritis," headaches, myocarditis, and colon infections of the urinary tract. Indeed it often happens that a patient comes to us solely because of one of these secondary troubles when chronic cholecystitis is the essential primary lesion. Diabetes may rarely be a sequel to cholecystitis through lymphatic transmission of the gall-bladder infection to the pancreas. Occasionally, therefore, both diabetes and chronic urinary infections are cured by cholecystectomy. I shall not attempt to catalogue specifically the symptoms of chronic cholecystitis, since they are too variable. Dyspepsia with gas, worse after a hearty meal and at night, and sometimes accompanied by soreness on the right side under the ribs, is perhaps as descriptive as possible. Often there are no digestive complaints, or only at rare intervals.

While duodenal ulcer must have a beginning, yet, when the patient seeks medical advice, one is apt to find that its duration has been many years. In one of the great clinics of the country it used to be said that this duration was, on an average, twelve years. Now the duration appears to be much shorter, owing possibly to the greater average skill in diagnosis, but one still feels skeptical of an ulcer which has apparently existed for only a few months or even a year or two.

The mistakes in diagnosis are more commonly made, as is usual in any disease, thru placing too much reliance on a single sign, symptom or laboratory finding, including the x-ray. Focal infections do not throw much light on diagnosis, since they may be responsible for either renal or gall-bladder infections, or duodenal ulcer, but previous attacks of appendicitis or typhoid fever are the most common etiologic factors in the occurrence of cholecystitis.

While any dogmatic maxim is alluringly dangerous in the making of a diagnosis, I should like to propose the following alliterative axiom (paraphrasing Deaver) as at least suggestive of gall-bladder disease. *Cholecystitis more often occurs in females, fat, forty and flatulent.* It may be as helpful, if not so accurate, as Osler's dictum of "food, fingers and flies" in the transmission of typhoid fever. The presence of jaundice would seem to be wholly characteristic of cholecystitis in distinguishing it from ulcer, and yet it may be misleading, as in one of the cases cited below. It has often to be taken on faith which has not the same importance in diagnosis as in spiritual affairs. Jaundice occurs in 10 to 20 per cent of cholecystitis cases (Kehr).

In the following illustrative cases I shall only present the chief diagnostic points in order to avoid prolixity.

Mrs. K. 48, seen in consultation with an internist. Has had repeated attacks for years of pain in the right upper abdominal quadrant. The pain lasted usually but a few days and was accompanied by much flatulence, and vomiting at times, and occasionally required morphine. Tenderness was not marked. A diagnosis had been made some two years previously of duodenal ulcer, chiefly based on the discovery by the internist of occult blood in the stools on many occasions. X-ray examination was negative. She was then operated upon in a large Eastern clinic and her appendix removed which was said to be chronically inflamed. No other lesion was found. The same attacks soon recurred. I saw her in one in which there was fever, high leukocytosis, and great tenderness over the gall-bladder. The diagnosis of cholecystitis was simple, as proved by operation.

The point I wish to bring out is the fact that an unusually competent man was misled by the presence of occult blood in the stools. The occurrence of gastric or intestinal hemorrhage in chronic appendicitis and cholecystitis is not a very rare happening, altho we are ignorant of its precise etiology. Probably the hemorrhage is due to an infection of the gastric mucous membrane. The facts that the patient was a stout woman of middle age, that the attacks were of short duration with the presence of much gas, that they were so severe as to require morphine, and that on their subsidence the patient was perfectly well for long periods, were all ignored, owing to the presence of occult blood in the stools.

This case also brings out another very important point that the gall-bladder was thought normal on exploration by one of the ablest surgeons in the country. The short period elapsing before the recurrence of the old symptoms after operation proved the existence of cholecystitis at the time of exploration. I believe that it is impossible in many cases to be certain that the viscus is normal by sight and feel of the gall-bladder at operation. In several patients have I seen the symptoms of cholecystitis recur after operation and refusal of the surgeon to remove the gall-bladder. Therefore I affirm that, when after careful study of a case the internist is satisfied of the presence of cholecystitis, he should urge the removal of the gall-bladder, even tho it seem normal at operation. Opening of the gall-bladder at operation may disclose the typical strawberry appearance. Many cases of cholecystitis are overlooked even by the surgeon who has the gall-bladder in his hands.

X-ray should be of the highest diagnostic importance in separating gall-bladder trouble from ulcer. I have had little help from the skiagram in the diagnosis of gall-stones, altho many favorable reports are printed. In some localities, where there is an abundance of lime in the water, the finding of gall-stones is more common. Roentgen ray may, however, show deformity of the duodenal cap, or pulling to the right of the pylorus from adhesions to the gall-bladder, or pushing over of the stomach to the left from distention of the gall-bladder.

Recently I made a diagnosis of duodenal ulcer in two patients in whom the x-ray was wholly negative, with no gastric stasis or deformity of the duodenal cap, yet operation confirmed the diagnosis in both instances. The ulcer was situated on the posterior wall in both patients, which apparently accounted for the absence of deformity of the cap.

During this same period x-ray was positive in two other patients in regard to gastric six-hour residue, hyperperistalsis and deformity of the cap, and a diagnosis of duodenal ulcer was made by the roentgenologist. Neither of these patients presented a clinical picture of ulcer and on later occasions both gave a negative finding with x-ray examination. One of these patients was explored and found to have Lane's kink, and Jackson's veil about the cecum. In neither of these cases did I accept the x-ray diagnosis.

In all instances, where the x-ray finding is not in accord with the clinical picture, a second x-ray examination should be made. I feel also that the giving of atropine, to the extent of securing its physiological action, is important. When a deformity of the cap disappears under atropine, the spasm is usually due to reflex from abdominal lesions outside of the duodenum.

Flatulence has been noted as a predominant feature in gall-bladder disease. There may be sudden and great distention, distress and belching, more often nocturnal, or the condition may be chronic and less marked. In these long standing cases with achylia, the presence of cholecystitis should always be suspected.

A. T. male of 55, referred by Dr. Mac Gregor, of Kent, had been incapacitated from real work for ten years on account of aching and burning pain in right lumbar region, front and back. Pain also was referred to right shoulder and arm. Indigestible food makes him much worse and may cause vomiting. There is constant gaseous distention. The pain often keeps him awake at night. Pain also often begins from one-half to two hours after eating in the pit of the stomach, with belching, but this does not occur with the regularity of ulcer. There is fever at times. Never any hemorrhage or jaundice. Normal white cell count. Achylia found, without stasis or occult blood in the stomach contents. Patient had typhoid fever twelve years ago, followed by attacks of abdominal pain, when the appendix was removed. Since that time, ten years ago, the constant indigestion has continued with no severe attacks of pain.

No slightest tenderness was ever found by me in many examinations of the gall-bladder but a diagnosis of cholecystitis was made on the history of typhoid fever followed by continuous indigestion, infection as shown by fever, achylia, constant flatulence, and pain in the right side of the belly radiating to the right shoulder and back. X-ray was negative, also Wassermann test. At operation cholecystitis and gall-stones were found. Retraction of the gall-bladder under the rib border prevented its palpation.

After all is said the routine examination of gall-bladders will more often discover cholecystitis than anything else. Tenderness will enable one to elicit symptoms which would otherwise not be brought out, save by the incentive of a suggestive "tip."

Thus C. H., a stout female of 52, was seen in consultation with a leading surgeon. Has always had indigestion since a child and has had several abdominal operations in consequence without relief. Ovarian cysts, appendix and finally the uterus were removed. Typhoid at thirteen. Has much distress in the stomach from gas belched and passed from bowels. Never jaundiced or subject to severe colic. Last year bloating, especially after eating pastry or fats. HCl normal. Tender over gall-bladder and below the angle of the right scapula; the latter quite characteristic of gall-bladder trouble. No symptoms of infection.

Diagnosis of chronic cholecystitis was made on history of typhoid and bloating, with due regard to *"female, fat, forty, and flatulent."* A "strawberry gall-bladder" was found at operation. After four months the patient writes she has never felt so well in her life.

In respect to constipation in this case, a noted clinician says that constipation is characteristic of ulcer, not of cholecystitis. I have seen too many constipated cholecystitis patients to put any reliance on this point.

A stout lady of 50 has been under my care for some years with chronic cholecystitis. Cholecystostomy was done some years ago, but, as in more than half such cases, symptoms have persisted. She has at times myalgia in the neck and back, arthritis of the fingers, headaches, nerve pains and recently a severe colon infection of the urinary tract. In all such infections one should look for gall-bladder trouble, as showers of colon bacilli enter the blood at times, and overpower the normal eliminating capacity of the kidneys. Rheumatism in stout, middle-aged females should always excite the suspicion of cholecystitis.

Two cases of myocarditis in women of sixty are now under my care. In one there has been marked dyspnea and angina. Both I believe are caused by existing cholecystitis, in the absence of other focal infections. The advisability of cholecystectomy will depend on many factors in such cases but, if done at a suitable time when the heart is functioning well, I believe it to be indicated.

Finally, there are not a few cases of cholecystitis where the diagnosis must be doubtful.

Thus, case 10092 in my service at the County Hospital was a man of 34. The history of pain began but three and one-half months ago. He has had sharp pain in the right upper abdominal quadrant, beginning one-half hour after eating and continuing to the next meal. Also severe during the night. Vomiting temporarily relieves the pain which has been growing more severe. Was told by a doctor that he was jaundiced. Marked tenderness in the upper right quadrant, a little above and outside the navel, as well as under the ribs. Had typhoid at thirteen. HCl 61, total acid 77. Occult blood present in feces. X-ray shows normal cap, no gastric or duodenal stasis. Some hyperperistalsis . Wassermann negative.

Operation showed adhesions between gall-bladder and pylorus and duodenum. Hence the tenderness over the gall-bladder as well over the duodenum. There was also a duodenal ulcer on the posterior wall.

The preoperative diagnosis was "probable ulcer" but I confess to grave doubts as between it and cholecystitis. The short history, negative x-ray findings, and early pain were rather against duodenal ulcer, while the supposed jaundice and history of typhoid fever favored cholecystitis. The sex, age, build, finding of blood in the stools and low area of tenderness for cholecystitis spoke in my mind for diagnosis of ulcer. The negative x-ray findings were probably due to location of the ulcer on the posterior duodenal wall.

I have used the doudenal tube, after Lyons method, in cholecystitis. In one case of jaundice no bile whatever was found in the duodenum. This is supposed to indicate obstruction from disease of the pancreas rather than from stone in the common duct. A diagnosis of stone in the common duct was made because of the fluctuating character of the jaundice and fever and chills, with pain in the left hypochondrium. The cause of the latter I do not know. It may have been due to pancreatitis which was present. A large stone was removed successfully from the common duct, altho the coagulation time of the blood was sixteen minutes.

Pain, tenderness, or both, in the right upper belly, may occur in various renal lesions (stone, tuberculosis, pyelonephritis, acute cortical, hematogenous infection). The urine may even be free from pathology in some of these. Operations have been done for cholecystitis by the ablest surgeons in mistaking this lesion for renal disorders.

Space does not permit the presentation of personal cases illustrating these difficulties in differentiating renal disease from cholecystitis. Careful study will usually lead us to a correct diagnosis. The urine should be carefully examined for the presence of bacteria.

I have nothing to offer in the way of treatment of cholecystitis except diagnosis. I consider that only the surgeon can cure the patient. In the case of early and mild types, however, I believe that the removal of foci of other infections, as in the sinuses teeth, or tonsils, should always be first given a fair trial.

THE CLINICAL APPLICATION OF BLOOD CHEMISTRY.*

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Of what practical value is blood chemistry and what additional information can it give us over the tried and accepted methods of urine analysis? Does blood chemistry give data not obtainable from urine chemical methods? Are the data obtainable from blood chemical manipulations of more service to the diagnostician than are urinary findings? Such questions are often asked when blood chemical means are suggested in dysfunctions of the kidney. We must answer emphatic "yes" to questions relating to the increased knowledge from the chemistry of the blood.

Do not think for a moment that I wish to belittle the information one can obtain from a urine analysis but of how much more value is a chemical blood analysis. The latter tells us what the blood is storing up, what the kidneys are doing or are not doing and gives one a better understanding of the nitrogen and carbohydrate equilibrium and a better idea of metabolic changes. It furnishes a superior basis for diagnostic and prognostic valuation of a case.

To illustrate: The finding of sugar in the urine indicates pathology. We know that such a condition may be found in either a case of diabetes mellitus or in renal diabetes. In the former one finds a high sugar content in the blood, while in the latter the blood sugar is normal. Both diseases may have the same amount of glycosuria. Would it not be of value to make an exact diagnosis, so that the treatment may be established along proper lines? Should the prognosis therefore be the same in both cases? One is a disease of only the kidneys, while the other is a frank disturbance of the entire sugar metabolic processes.

In order that one may have a better understanding of the figures that will be mentioned, we give the normal values obtained from relatively normal individuals at the end of a fast, usually about twelve hours.

Total non-protein nitrogen—25-35 mgms. per 100 cc. of blood.

Urea nitrogen—12-15 mgms. per 100 cc. of blood.

Uric acid—1-3 mgms. per 100 cc. of blood.

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*From the Pathological Laboratories of St. Luke's Hospital, and Spokane Clinical Laboratory.

Creatinine—1-2 mgms. per 100 cc. of blood.
Creatine—5-10 mgms. per 100 cc. of blood.
Sugar—0.08-0.12 per cent.
Chlorides, as NaCL—0.65 per cent.
Plasma Co_2 not less than 50 per cent.

Further, it may be of interest at this point to consider the elimination of the products of metabolism. They are excreted by the kidney in the following amounts:

Urea	25 gms. or 85 per cent.
Uric acid	0.5 gms. or 2 per cent.
Creatinine	1.5 gms. or 5 per cent.
Ammonia	0.5 gms. or 4 per cent.
Undetermined	0.5 gms. or 5 per cent.

Let us consider the origin of these waste products.

(1) *Urea.* During the processes of digestion protein matter is broken down into amino-acids, and by a process of absorption, osmosis or vital activity of the cells, they are taken up into the blood. Some of the amino-acids are retained, while others are transformed into ammonia and eliminated. Therefore, the greater part of the nitrogen that is eliminated is exogenous, i.e., coming from the food and occurs as urea.

(2). *Uric acid.* This is partly exogenous, partly endogenous, partly from that of our own tissues, and partly from the metabolism of foods. If liver is eaten, we can raise the uric acid content of the blood. It comes from purin which is changed to xanthin and then to uric acid by a process of deaminozation. Uric acid is the most difficult of the non-protein constituents of the blood to be excreted. Urea is next. Creatinine is easiest of all. Urea exists in the body in twenty times as much concentration as creatinine, and it therefore takes twenty times as much work for the kidney to eliminate its urea as its creatinine.

(3). *Creatinine.* This is entirely endogenous. Owing to the fact that the creatinine content of the muscles is always higher than that of the blood, liver or any other tissue, it strongly suggests that muscle is the chief creatinine-forming tissue. As mentioned above, creatinine is the easiest of all non-protein nitrogen constituents to be excreted. Therefore, it will be the last product to be retained and its value is inestimable, when prognosis of kidney function is to be rendered.

In attempting to measure the kidney function, the metabolic faults were determined by numerous methods, as the indigo-carmine test, the phlorizin test, cryoscopy (freezing point) of both blood and urine, methylene blue test, etc. All have had their days of popularity and give only meagre information. The phenolsulphonephthalein test, however, has done more to advance the cause of kidney function tests. It is quite reliable but has its limitations. It tells us only what the kidneys are eliminating at the time of the test. From it one cannot say that there is a retention of objectionable constituents. This has been shown in experimental work upon rabbits, in whom a nephritis has been produced with uranium nitrate. At first there was a great accumulation of non-protein nitrogen and a marked decrease in the phenosulphonephthalein excretion but, as the phthalein improved, the non-protein nitrogen still remained high. In practice one often sees a patient with an impending uremia. having a phthalein excretion that is practically normal or just below normal, yet he may be dead in a few days. Quite the reverse is seen in a patient with a chronic nephritis, whose phthalein excretion is zero in two hours, yet will live for some years. Therefore, in order to be able to make a prognosis in a given case, it is essential to know what the kidney is retaining rather than what it is excreting.

With these fundamental facts in mind, let us consider the relation of blood chemistry to disease.

(1). *Nephritis.* As the kidney is the great regulator of the composition of the blood, it is in disorders of this organ especially that most is expected from a study of the variations in the non-protein nitrogen of the blood. In cases of nephritis, Mosenthal considers that four factors must be regarded. (a) Retention of the nitrogen by an insufficient kidney. (b) Concentration of blood due to loss of water. (c) Increase of protein metabolism. (d) The chemical combination in which the non-protein nitrogen exists in the blood. Thus in high fevers, as pneumonia, typhoid, where there is a marked toxogenic decomposition of protein, these decomposition products find their way into the blood.

In degenerative conditions of the kidney there is a marked divergence from the normal. In an early interstitial nephritis we have the first indications of retention in the most difficultly excreted constituents of the blood, namely, uric acid. As the condition becomes more chronic, there is a retention of the more easily excreted substances, namely, urea, as seen in the cases of chronic interstitial and diffuse nephritis. As the case becomes a severe type of nephritis, the easiest of all products of metabolism is retained, as shown by the high creatinine values. Therefore, in the latter we have a most valuable prognostic sign in all cases of nephritis. Myers and Lough have pointed out that, when creatinine appears in the blood in concentrations of 5 and more mg. per 100 cc., the prognosis is extremely poor. In the cases of their series showing over 5 mg. per 100 cc., all terminated fatally in from a few days to two months. Clinically one may see such a patient showing nothing except a hypertension with some cardiac hypertrophy, yet will rapidly go into a coma and die.

One striking case to serve as an object lesson in pointing out the value of this type of work.

A patient with a course similar to the above, came under observation with a urine negative for albumin and casts. Blood chemistry at this time showed:

Urea nitrogen 97 mg. per 100 c.c. of blood.
Uric acid 6.5 mg. per 100 c.c. of blood.
Creatinine 17.5 mg. per 100 c.c. of blood.
Blood sugar 0.18 per cent.

Patient was immediately placed on a nitrogen-poor diet and after three days showed

Urea nitrogen 129 mg. per 100 c.c. of blood.
Uric acid 6.3 mg. per 100 c.c. of blood.
Creatinine 21.8 mg. per 100 c.c. of blood.

The nitrogen intake was further restricted, and urea, after seven days was 132 mg. creatinine 22.3 mg. Death occurred on the 25th day of observation with a urea of over 150 mg., creatinine over 25 mg.

Occasionally a case of latent nephritis with gastric symptoms is seen. The more common symptoms are nausea, vomiting, loss of appetite, flatulency, abdominal distress (usually without relation to meals) and headache. Owing to the depressed gastric secretion, the diagnosis of asthenic gastritis is occasionally made. On account of the toxic character of the vomiting it is usually thought to be due to some enterogenous intoxication. Some of these cases prove rapidly fatal, as was prognosticated by the high creatinine reading.

Symptomatically it is often difficult to determine whether a case is renal or cardiac. Both could show unconsciousness, delirium, dyspnea or orthopnea, edema of the lungs and general anascara. Pulse may be strong or weak. Heart signs, particularly in a decompensated heart, are usually valueless, as they are obscured by a dilatation. The urine may be loaded with albumin and casts. By blood chemical means such a case can be determined before the autopsy table is reached.

(2) *Gout.* Garrod claimed that an accumulation of uric acid in blood is pathognomic of gout. It is true that in gout there is an increase from 3-7 mg. However, there are other conditions in which the uric acid is increased, as ordinary nephritis and all conditions associated with increased nuclein decomposition, as leukemia, pneumonia, carcinoma and severe febrile conditions. Folin's findings indicate that during gouty attacks there invariably is an abnormally high uric acid value, while the total non-protein nitrogen is normal. Therefore, in a case of suspected gout, the uric acid reading is of no value, unless the total non-protein nitrogen and urea are known to be normal.

(3) *Diabetes.* When sugar is detected in the urine the patient is called a diabetic. Usually he is fasted or placed on some diet that restricts his carbohydrate intake and, when he becomes sugar free, he is given another diet. Sometimes permanent results are obtained, and sometimes, too, our patient goes into a coma in spite of the excellent diet. How can we tell that the diabetic is on the proper diet? By determining the amount of sugar in the blood this can readily be determined. The normal renal threshold is disputed, but above 150 mg. of glucose in the blood, sugar usually appears in the urine. However, some normal individuals may excrete sugar at 140 mg. or less. Therefore, the patient's blood sugar should approach the normal in order that normal sugar metabolism may be resumed.

The finding of sugar in the urine does not necessarily mean true diabetes, but it can mean that there has been an excessive intake of carbohydrates together with a low sugar tolerance. How can this patient's tolerance then be determined? The patient is given 100 gm. of glucose after a night of fasting. A normal individual's blood will show a maximum amount of sugar in the blood before the end of the first hour, while it will be back to normal at the end of two hours. In a moderately severe case of diabetes, the blood sugar is higher two hours after the ingestion of glucose than it is at the end of the first hour, reaching more than 200 mg. per 100 c.c. of blood. When the diabetes is mild or quiescent, the point at which the kidneys eliminate sugar is stationary but, when the disease become progressive, the threshold tends to rise. A rising threshold in the face of dietary treatment should be regarded as a serious prognostic sign. By the study of the renal threshold it is possible, therefore, to differentiate a case of true diabetes from a renal diabetic.

Other conditions that must be differentiated from diabetes when the blood sugar is high:

(a) Nephritis, but here the non-protein nitrogen and its constituents will be high.

(b) Thyroid derangements. These have a decreased sugar tolerance as in a diabetic, but with rest will disappear. The basal metabolism rating will be high.

(c) Dysfunctions of hypophysis. As above, but must be recognized by its clinical manifestations.

Acidosis is a term loosely used and strictly speaking means a condition existing when acetone bodies appear in the urine. Blood in health has a slightly alkaline or neutral reaction. This is maintained by a mixture of carbonic acid, carbonates and phosphates, and these remain at constant levels, even tho the exogenous source of alkalies and acids is increased or decreased. Carbon dioxide is thrown off from the lungs and the urine in health is acid in reaction. Henderson has shown this to help in maintaining the alkalinity of the blood. When the amount of acid increases in the body, there is a quick stimulation of the respiratory centers with the result that more carbon dioxide is given off and an acid condition of the blood prevented from assuming large proportions. When the acidity of the blood is threatening, there is a quick call for ammonia. It is only when ammonia is being exhausted that acidosis supervenes, that is, when the so-called acetone bodies appear in the blood. These, when excreted in the urine, produce a ketonuria or acetonuria. Acidosis does not occur when the body is easily and normally burning sugar, but when the carbohydrate metabolic processes are in abeyance. Then the fats go thru their imperfect evolution to diacetic acid, betaoxybutyric acid and acetone, or what are called the acetone bodies.

Attention has been called to the fact that ammonia is called to suppress acidosis. One of the methods for determining the ammonia output, which in turn will guide us to estimate the degree of acetonuria, is to determine the amount of sodium bicarbonate necessary to render the urine alkaline. Normally 5-10 gms. will render the urine alkaline. In mild acidosis 20 gms. are required, while in extreme cases 40 gms. or more. In coma it is usually impossible to neutralize the urine, no matter how much bicarbonate is used.

Another method more delicate than the urine tests and one which will determine an impeding acidosis is to estimate the combining power of the blood plasma with carbon dioxide, as described by Van Slyke. When the patient's blood plasma is impaired in taking up carbon dioxide, then we have acidosis. Normally blood plasma has the capacity to combine with 65 per cent or more of carbon dioxide which can be thrown into it in the form of alveolar air. When the percentage falls below 50 per cent, we must consider the individual in a state of acidosis.

Still a third method can be employed and this determines the acidity and alkalinity directly by calculating the hydrogen-ion concentration of the blood by Marriott-Levy and Rowntree's method.

Blood Chemistry and Surgery. It may be asked what clinical application can these methods have in surgery. Briefly let me bring a few of the more important factors to your minds. There is not a single hospital that has not as an unwritten or written law that no patient shall be operated on before a urine examination is completed. How often are patients operated on in spite of unfavorable urinary findings and, further, how often does the surgeon operate without even a thought of the urinary findings. True, most of the times luck is with him but there are times, particularly in an elderly patient, when he would have rested easier, had he been assured that the patient's kidney was functioning properly and that no products of metabolism, as urea, creatinine, etc., were being retained. Operative risk, therefore, is largely judged by kidney function, and operative risk means the ability to stand the anesthetic and to carry on the functions in the presence of overwhelming insults, due to the ether and the operation. Possibly in no department of surgery are these tests so much indicated as in urology, where the operative risks are old men for prostatectomy. Remarkable lowering of the death rate has occurred in cases of retention, where a free washing of the kidney for days prior to the operation, and waiting until cardiac and renal functions are within rational limits of health.

It is a well recognized fact that it is necessary to choose both the proper anesthetic and capable anesthetist, but how often are they neglected. Ether, when carried to the point of saturation, has extremely deleterious effects upon the kidney and is apt to bring on an acidosis or kidney suppression. Therefore, a gas oxygen anesthesia is preferred in all cases, where there is a retention of metabolic products. Should the procedure take too long for one operation, plan a two stage procedure.

Much is heard of an acidosis following an operation. Often the diagnosis is incorrect and still oftener the cases remain unrecognized. The method of Van Slyke, mentioned above under acidosis, can be readily employed and an exact diagnosis determined upon. Then, should an acidosis exist, by pushing the bicarbonate, the patient can be helped considerably, whereas, if it is allowed to be unrecognized, the termination may be fatal or the course may be an extremely stormy one for many days.

Conclusion. By blood chemical means one is enabled to give a proper valuation of a case where some kidney insufficiency exists, may it be in a nephritis or diabetes.

Retention of the products of metabolism takes place in the order of their solubilities. Therefore, uric acid, the least soluble and most difficult constituent to be excreted, is the first to be retained. Above 3 mg. per 100 cc. represents a retention. Urea comes next in solubility and a content above 15 mg. per 100 cc. represents a retention. The most soluble is creatinine, and all values above 2 mg. per 100 cc. represent a retention. Because it is the last of the products to be retained, it is invaluable from a prognostic standpoint, all figures above 5 mg. usually terminating fatally from but a few days to two months.

Blood sugar values above 120 mg. per 100 cc. denote a hyperglycemia and, in cases of diabetes, indicate active diet to bring the values to as normal a figure as possible. An acidosis exists when the acidity of the blood is threatened, as indicated by the failure of the carbon dioxide of alveolar air to combine with the patient's blood plasma. When values fall below 50 per cent an acidosis exists.

In surgery blood chemical methods are particularly applicable in elderly applicants for operation and in younger individuals, in whom some kidney lesion exists. Preliminary flushing of the kidney and other preparations, together with a suitable anesthetic, will do much toward reducing our mortality.

Since we have exact methods of establishing a diagnosis and prognosis, we owe it to our patients to give them the benefit of these scientific determinations.

REPORT OF A CASE OF ACUTE LYMPHATIC LEUKEMIA.*

BEN N. WADE, M. D.
PORTLAND, ORE.

I wish to present a report of a case of acute lymphatic leukemia, the occurrence of which is comparatively infrequent. The symptoms and signs developed with extreme rapidity in this case and, when the patient was taken home from the hospital less than six weeks from the time the initial symptom appeared, he was almost in extremis. I have not heard of the ultimate outcome, but feel sure he has died. This disease is of interest chiefly regarding its diagnosis, unknown etiology, its clinical variations, its pathology, and its relation to other types of disease of the blood-forming organs. This particular case ran the course of a virulent infection, the lymphoid organs being especially involved.

Adrian C., aged seven, had been in good health until Dec. 10, 1920, when the first sign of his disease was noticed. He never had any previous illness of consequence, but had always been somewhat delicate. The family history was negative.

At the onset of his trouble, a small nodule was noticed on the left side of his neck below the angle of the jaw. He had no sore throat or other symptoms at that time. The nodule was not painful, but was slightly tender. It increased rapidly in size, and on Dec. 18, when he was first brought in for examination, it was about the size of a walnut. This nodule was a cervical lymph node. It was firm in consistency and was not adherent to the surrounding tissues. There was no other glandular involvement at that time. His tonsils were hypertrophied, but he had never had an attack of sore throat. The lungs and heart were negative, but the pulse rate was rapid. This tachycardia was conspicuous thruout the course of the disease. The abdomen was negative, altho he stated that on the two previous evenings it had become distended and he had felt nauseated at this time. His appetite was poor. Temperature was normal, bowels were regular. I advised taking the patient to the hospital at this time, but this was refused.

The patient was taken to his home in the country and was not seen again until Dec. 29, at which time he was again brought in on account of the rapid advent of symptoms. At this time the gland on the left side of his neck was of enormous size, being as large as an egg, and many minute shot-like glands could be palpated along the entire left cervical chain, and several enlarged glands had appeared in the right cervical chain. All the glands were hard, discrete and were not adherent to the surrounding tissues. None of them were painful or tender, except the original large one, and it was but slightly so. No other glandular involvement was present. Temperature was 99° and his pulse 120. The lungs and heart were negative. The spleen and liver were not palpable and there was no abdominal distension, but he stated this occurred nearly every evening after eating, at which time he had some epigastric distress and occasionally felt nauseated. He had never had a chill and had never noticed any fever.

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*Read before Portland City and County Medical Society, Portland, Ore., Feb. 16, 1921.

The patient was taken to the hospital. At this time the blood picture was as follows: Red blood cells, 4,800,000, white cells, 11,000. Differential: polymorphonuclear neutrophiles 53 per cent, large lymphocytes 4 per cent, small lymphocytes 40 per cent, transitionals 3 per cent. The urine was negative. Albumin was found in one specimen examined later, but casts were never found.

The large gland on the left side of neck was removed, also the tonsils and adenoids on Dec. 30. This gland had been causing great inconvenience on account of its size and location. It was rather adherent along the carotid sheath. Its upper pole had broken down and contained a brownish-colored pus, the smears of which were negative. The gland was sectioned by Dr. Foskett who reported it typical of acute lymphatic leukemia. The glands of the opposite side of the neck were given massive doses of x-rays by Dr. Butler, and this treatment seemed to temporarily decrease their size.

The patient continued to grow worse rapidly and new findings rapidly made their appearance. Pulse rate increased, varying between 130 and 150. He began to have profuse night sweats, and abdominal distension became persistent. This was apparently a toxic paresis. In the evening he complained of epigastric distress and nausea, and at times vomited. The skin rapidly took on a peculiar pallor, but lips and mucosa of the mouth seemed to be a deeper red color than normal, the pallor of skin and deep red color of lips in striking contrast.

On Jan. 6 the firm margin of the spleen and the border of the liver could be definitely palpated. No ascites was present. The stool examination showed the presence of occult blood, and on Jan. 14 he began to have nose bleed. This was of daily occurrence from this time until the patient passed from my observation.

On Jan. 15 blood picture was as follows: Hemoglobin 65 per cent, red blood cells 4,192,000, white cells 38,600. A few normoblasts were noted. Differential count: small lymphocytes 44 per cent, large lymphocytes 48 per cent, polynuclear neutrophiles 6 per cent, eosinophiles 2 per cent. The blood serum was milky in appearance and seemed to contain fat globules.

The patient rapidly grew weaker and complained of complete loss of appetite. He seemed to be losing weight rapidly, but actual weight remained almost stationary, varying between 39 to 41 lbs. The spleen and liver rapidly increased in size, and on Jan. 15 masses were palpable in the midgastric and right hypogastric regions. Rapid growth of these masses, which evidently were retroperitoneal glands, could be noted from day to day. These masses were somewhat tender on pressure. On Jan. 17 the patient began to have a non-productive cough, and rales and dulness were detected in the right upper lobe. He had no pain or other symptoms referable to his chest. An x-ray examination outlined the extent of the consolidation in the right upper lobe. No increase had been noted in his respirations which had been more rapid than normal ever since his abdominal distension had been present. On Jan. 18 a shower of petechiae appeared in the left groin and lower abdomen.

Consultation was had with Drs. Selling and Bilderback, but the patients decided to take the child home and on Jan. 19 he left my observation. Treatment with x-rays and salvarsan did not seem to make any impression on the course of the disease. Blood transfusions were refused.

The outstanding features of this case may be summed up as follows:

1. Sudden onset with the appearance of a solitary gland, which was either an original focus of infection, or was a manifestation of an already generalized disease.
2. Rapid involvement of the cervical lymph glands.
3. Tachycardia and rapid respiration.

DERMATITIS EXFOLIATIVA, FOLLOWING INJECTIONS OF ARSENICAL PREPARATIONS INTRAVENOUSLY.

Geo. S. Whiteside, M. D., F. A. C. S,
PORTLAND, ORE.

The definition of this condition is "an inflammatory disease, involving the whole surface of the body, characterized by deep redness with abundant flaky desquamation." It is sometimes called pityriasis rubra. The objection to these names and the definition is that both are merely descriptions of the objective symptoms to be observed clinically. The cause is said to be obscure.

In the majority of instances it commences on the arms, chest and upper back. Usually it is symmetrical. Later it generally spreads more or less rapidly until it is absolutely universal. Fever may occur and often rises to 103° or 104°. At first there is apt to be an itching or a burning feeling. Sometimes prostration is extreme, sometimes not noticeable.

The exfoliation of the skin in a fully developed case is unmistakable. The whole cutaneous surface is one mass of thin, dry, paper-like scales, which peel off in larger or smaller flakes. No area of sound skin remains, except in those mild cases where only a portion of the body is affected. The scalp is covered by scales and much of the hair drys up and falls out. The eyebrows, eye lashes, pubic and axillary hair are usually all lost. The nails may be affected but generally not. Sweat secretion is not lost but sometimes many of the sweat glands are involved. The scales of skin resemble the thin, shaggy bark of some trees.

Edema is present in the skin and subcutaneous tissue so that often the eyes can not be opened. Generally the mucous membranes are not affected or only to a slight extent. Even if the prostration and edema are considerable, the patient is concious and able to take liquid nourishment. Sleep is somewhat interfered with on account of the discomfort and the burning of the skin.

In the class of cases caused by arsenic, of which we write, the disease is acute, rapidly developed and as rapidly subsides. The mortality is low. Generally it comes on two or three weeks after injections of arsphenamin, arsenobenzol or some similar preparation. Why a few individuals show this decided idiosyncrasy while the many do not, I am unable to explain. These three cases here reported are the only ones I have seen among many thousands of syphilitics who have come under my observation in the past fifteen years.

In my cases the urine was normal, blood pressure normal and there was no discoverable sign by which one could predict that such a result might follow antisyphilitic treatment. Two of my cases were women, one a man; two in the secondary stage of syphilis, one showing signs of neurosyphilis only, none with cutaneous or mucous membrane lesions. One was given mercury simultaneously, the others received none. Both the women were of nervous habit, the man apparently not so. No unusual reaction to the arsenic at time of or immediately following the administration. Injections were given once a week in all. In one case the dermatitis followed the second dose within three days; in the other two it followed the third or fourth dose after an interval of two or three weeks. In one there was fever, prostration and all the classical symptoms above enumerated, while the others never were confined to bed and had normal temperatures thruout.

Four cases reported by Dr. Magnette (Medical Corps, U. S. Navy) from the Naval Hospital at New York, were very similar to those two of mine which were the more severe. The photographs illustrating his paper (The Military Surgeon, Sep. 1920, page 342) especially that of his fourth case, exactly represent the cutaneous lesions of two of mine. However, in the male case of my series, his ears and nose were so swollen and inflamed that for a couple of weeks he much resembled some cases of tubercular leprosy and, if it had not been for the acute onset and rapid return to normal, these conditions might be confused.

Treatment used in my cases was the application of a soothing ointment of ung, zinci oxidi with enough lanoline to make it very soft, and a small quantity of carbolic acid to allay the itching. All got well, no recurrence. The case reports follow.

Case 1. Mrs. F. R. age 45. Husband under treatment for syphilis for several years. Blood Wassermann negative. Spinal fluid Wassermann 3 plus. Mild symptoms suggestive of neurosyphilis.

Intravenous injection of two doses of neoarsenobenzol. A few days after the last dose an urticarial-like eruption appeared on arms, chest and shoulders. The wheals became confluent, swelling subsided and exfoliation of the skin began. after ten days or two weeks she had entirely recovered. Never constitutinal symptoms. Some itching and burning. Considerable hair fell from the scalp.

Case 2. J. K. Male. Age 30 years. Greek laborer. Previously well except for an acute syphilis. Given three intravenous injections of arsenobenzol at seven day intervals. No untoward symptoms. Three weeks after the third injection redness and swelling, rather of the diffuse erysipelatous type, on hands, arms, ears, nose and sides of neck. One week later the dermatitis was universal and typically exfoliative. No marked constitunal symptoms. Temperature never above 99.5°. Urine normal. Slight involvement of bucal mucosa. No prostration. Complete recovery in 36 days.

This case at one stage might have been mistaken for leprosy.

Case 3. Mrs. R. Age 24. Recent syphilitic infection. Seen in consultation with Dr. J. O. Pitt, of Portland.

In December and January the doctor had given four doses of arsphenamin, intravenously, at seven day intervals. About three weeks after the last injection an erysipelatous-like redness of chest. This became an eruption resembling measles. Fever. General constitutional symptoms.

Ten days later the eruption became dry, burning, and scaly. An universal edema of subcutaneous tissue. Prostration extreme. Fever up to

103° and 104°. Every normal function disturbed but not inhibited. Loss of all body hair and most of that on scalp. Exfoliation of skin very marked and complete over whole body. Huge pieces of dry skin-like sheets of tissue paper came off, only to find the deeper layer acting similarly the next day. After two weeks all symptoms gradually became less severe and within eight weeks patient had entirely recovered. No recurrence in the past year.

904 Journal Building.

REPORT OF A CASE OF BILATERAL THROMBOSIS OF THE LATERAL SINUSES NOT ORIGINATING FROM OTITIS.

Ralph A. Fenton, A. B., M. D.
PORTLAND, ORE.

This case, N. L., white, male, aged 19, was seen some months ago thru the courtesy of Dr. R. B. Stephenson, of Centralia, Wash.

There was a history of incessant swimming and high diving during the summer months, with occasional colds and some frontal headaches. The diving was often done in rather stagnant and contaminated bodies of water, but never in a public tank.

Ten days or two weeks before Dr. Stephenson saw him, the frontal headache had become especially severe, and when he came to his office there was evident involvement of the left frontal, ethmoid, and maxillary sinuses, for which a rather extensive drainage was carried out. A free flow of yellow pus was obtained, with temporary remission of symptoms.

In a few days, however, it bacame evident that orbital involvement was also occurring on the left side, and the temperature shot up again to 103° and 104°. Pus appeared to be heading toward the outer angle of the orbital ridge, and intense prostration was beginning. There was no ear involvement at any time.

Dr. Stephenson now brought the patient to Portland, and an extensive Luc-Hajek external frontal operation was done at the Eye and Ear Hospital immediately. It was found that free nasal drainage from the sinus existed, and it was assumed that the orbital involvement over the eye would follow this open channel. Temperatute dropped to 99°, but gradually climbed during the next ten days back to 103° and 104°, with a pulse of only 80 to 84. This dissociation, coupled with a unilateral left choking of the optic disc and a less marked congestion of the right disc, led us to the diagnosis of abscess of the left frontal lobe, to confirm which Dr. Selling was called in. Upon his confirmation, and after negative lumbar puncture, Dr. Dillehunt raised a large forehead flap and took out the inner wall of the frontal sinus, opening a large abscess which gushed out under pressure. Relief of pressure brought up the pulse, and the cigarette drain first used was changed to a stiff tube, thru which swabbing of the cavity with dichloramin oil and dropper instillation might be done.

It was noted by Drs. Bean and Selling just before the second operation that cordlike soreness of the right side of the neck had begun, and jugular clotting was suspected. Metastatic lung involvement was expected, and the signs of fibrinous pleuritis and bronchopneumonia were detected, particularly on the right side. Several intramuscular injections of quantities of whole blood from near relatives were used with remarkably stimulating effect, by Dr. Bean. The stiffness and soreness of the neck increased, while there did not seem to be much pus coming from the tube into the brain abscess. It was noted, however, that a gradual herniation of the frontal lobe was occurring, with pressure of the drainage tube against the bone and consequent stoppage and slow pulse for a time.

About three weeks after the brain operation dark blood instead of pus came from the drainage tube, showing a beginning involvement of the dural veins; the next day the right arm was paralyzed, and aphasic phenomena and semicoma the following day mapped out the extension of the meningitic invasion. Death occurred on the 27th day postoperative.

Postmortem, performed by Dr. Menne the same evening, disclosed an abscess extending vertically about 8 cm. from the left orbital roof and diagonally across the longitudinal sinus, eroding the inner surface of the bone. There was also a vast amount of pus filling the dural cavity and compressing the left cerebral hemisphere. Pus had burrowed thru the roof of the orbit and traveled out toward the zygoma to appear under the eyebrow. Pus had disappeared from the facial cavities.

Complete and organized thrombosis of the right lateral and sigmoid sinuses, extending down into the jugular, and incomplete organized thrombosis of the left sigmoid sinus and jugular had occurred.

Hundreds of abscesses were found in the lungs; there was bilateral coalescing bronchopneumonia, marked acute hemorrhagic and fibrinous pleurisy, acute trachobronchial lymphadenitis, and marked cloudy swelling of the parenchymatous organs. A hemolytic streptococcus was the chief organism involved.

By reason of the rarity of thrombosis of the sigmoids and jugulars from any other reason than contiguous infection from middle ear and mastoid, and because the postmortem clinic had not been established when this case occurred, this report and exhibition of specimens are made at this time. The literature available shows only a few cases reported, which are either traumatic, or occur in cases of eclampsia, chlorosis, or in marantic infants or in such cases as this one. Purulent conditions in the cervical region have been reported as causing such thromboses.

616 Journal Building.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah.
Devoted to the Interests of the Medical Profession of the Pacific Northwest
Editorial Office, 1011-12 Cobb Building, Seattle, Wash.
June, 1921

EDITORIAL

THE TRISTATE PORTLAND MEETING.

Below will be found the completed program for the tristate meeting to be held at Portland. June 30-July 2. At no previous medical meeting in the Northwest has there been assembled such a number of distinguished physicians and surgeons from the East, to deliver papers and addresses. The program alone should be sufficient to attract every physician of Oregon and adjacent states who can arrange for this short period of vacation. It will be noted that the Portland committee has arranged an attractive series of entertainments for the ladies, so that the visiting physicians should bring their wives, who will be assured an enjoyable and attractive visit. Attention is called to the descriptions of the Portland hospitals in this issue, which demonstrates the unsurpassed hospital facilities of this city.

PROGRAM.

THURSDAY, JUNE 30.

SURGICAL SECTION.

11:30 A. M. **"Surgical Treatment of Gastric and Duodenal Ulcer"** (Lantern Slides) Dr. Alfred A. Strauss, Chicago. Discussion opened by Dr. R. C. Coffey.

12:00 M. M. **League Luncheon.** Address by Mr. Celestine J. Sullivan, San Francisco, Cal. "The League for the Conservation of Public Health." Discussions opened by Dr. C. J. Smith and Mr. H. F. McInturff.

2:00 P. M. **Atrophic Pyelonephritis.** (Lantern Slides) Dr. Wm. F. Braasch, Rochester, Minn. Discussion opened by Dr. A. E. Mackay.

3:00 P. M. **Local Anesthesia.** (Lantern Slides) Dr. Robert E. Farr, Minneapolis, Minn. Discussion opened by Dr. W. B. Holden.

4:00 P. M. Dr. Robert E. Farr, Minneapolis, Minn. Motion pictures of operations under local anesthesia.

MEDICAL SECTION.

10:30 A. M. **Treatment of Asthma.** Dr. Hurwitz, San Francisco, Calif. Discussion opened by Dr. Laurence Selling.

2:00 P. M. **Milder Disturbances of Endrocrine Functions.** Dr J. R. Brown, Tacoma, Wash. Discussion opened by Dr. T. Homer Coffen.

3:00 P. M. **Selective Localization in Arteriosclerosis.** Dr. Frederick Epplen, Spokane, Wash. Discussion opened by Dr. Chas. E. Sears.

4:00 P. M. **Clinical Records, The Laboratory and the General Practitioner.** Dr. R. E. Coleman, of the Vancouver General Hospital, Vancouver, B. C. Discussion opened by Dr. R. B. Dillehunt.

THURSDAY EVENING.

8:30 P. M. President's Reception to visiting speakers (informal) at the residence of Dr. and Mrs. Joseph A. Pettit, 874 E. Taylor St.

FRIDAY, JULY 1.

MEDICAL SECTION.

10:30 A. M. **Clinical Discussion of Hematuria.** Dr. Wm. F. Braasch, Rochester, Minn. Discussion opened by Dr. Geo S. Whiteside.

12:00 M. M. **Luncheon at Medical School.**

2:00 P. M. **The Heart in Goitre.** Dr. Phillip V. von Phul, Seattle, Wash. Discussion opened by Dr. J. Earl Else.

3:00 P. M. **Osteomyelitis.** Dr. Alfred Strauss, Chicago. Discussion opened by Dr. Andrew C. Smith.

4:00 P. M. **Blood Transfusion in Infants and Children, with a Summary of a Thousand Cases.** Dr. Allen Brown, Toronto, Can. Discussion opened by Dr. J. B. Bilderback.

SURGICAL SECTION.

10:30 A. M. **Ununited Fractures.** (Lantern Slides) Dr. Dean Lewis, Chicago. Discussion opened by Dr. E. Sommer.

2:00 P. M. **Preoperative and Postoperative Modifying Conditions as Affecting Harelip, Cleft Palate and other Plastic Surgical Restoration.** Stereopticon Illustrations. Dr. Geo. V. I. Brown, Milwaukee, Wis. Discussion opened by Dr. A. E. Rockey.

3:00 P. M. **Plastic Repair of Acquired Defects and Deformities of the Face.** (Lantern Slides). Dr. Vilray P. Blair, St. Louis, Mo. Discussion opened by Dr. E. B. McDaniel.

4:00 P. M. **Suprabubic vs. Perineal Prostatectomy.** (Lantern Slides). Dr. Frank Hinman, San Francisco, Calif. Discussion opened by Dr. H. W. Howard.

6:30 P. M. Banquet and Ball at Waverley Golf Club.

SATURDAY, JULY 2.

GENERAL MEETING.

10:00 A. M. **Making the Public our Allies.** Dr. Frederick Green, Chicago. Representative of the American Medical Association.

Hospital Standardization. Dr. W. E. Musgrave, San Francisco, Calif.

Judge Harold M. Stephens. Salt Lake City, Utah, Retiring Director of the American College of Surgeons. Discussion on Hospital Standardization.

Dr. Ernest F. Tucker, Regional Director of Oregon, Washington, and

Idaho, of American Society for the Control of Cancer. Announcement of plans and purposes.

SATURDAY AFTERNOON AND EVENING.
Trip up the Columbia River Highway, dinner, barbecue, and entertainment at the Automobile Club.

LADIES ENTERTAINMENT PROGRAM.

THURSDAY, JUNE 30.
A. M. Registration.
12:30 P. M. Luncheon at the Multnomah Hotel.
2:00 P. M. Trip to the Plant of the Union Meat Company. Demonstration of the scientific preparation of animal food products.
8:30 P. M. President's Reception to visiting speakers (informal) at residence of Dr. and Mrs. Joseph A. Pettit, 874 Taylor St.

FRIDAY, JULY 1.
10:00 A. M. Automobile sight-seeing trip.
12:00 M. M. Visit to the Medical School and luncheon at new County Hospital.
4:00 P. M. Informal Tea. At the home of Mrs. R. C. Coffey. 789 Glisan Street.
6:30 P. M. Banquet, Multnomah Hotel.

SATURDAY, JULY 2.
P. M. Trip up the Columbia River Highway. Barbecue and dance at the Automobile Club.

REDUCED RAILROAD FARES TO THE TRISTATE MEETING.

The railroads of Oregon, Washington and Idaho will issue special rates from June 27 to July 2, for the tristate meeting, provided $0.67 or more is paid on the going trip, if 250 or more receipts for tickets purchased are presented at the meeting. Return tickets will be sold for one-half fare from June 30 to July 6. In order to secure this reduction one must obtain a receipt when purchasing the ticket for Portland, which must be presented to the secretary of the meeting. Do not forget the receipt, without which the reduced fare cannot be obtained.

PUBLIC HEALTH VICTORY.

The battle which was fought last month in Washington, in which the believers in conservation of public health waged a contest against the christian science opponents to such measures, resulted in a decisive victory. This was the first step in a contest which must be carried on during the next year and half. Under the auspices of the Public Health League of Washington, a campaign was conducted to obtain the necessary number of signatures for the referendum petition which would submit to the voters of the state at the November election, of 1922, the bill passed by the recent legislative session, which prevents the physical examination of school children. While 24,000 signatures were needed, over 65,000 were secured. The most notable feature of the contest was the Saturday afternoon canvass, held first in Spokane where more than 6,000 signatures were obtained, and the duplication of this effort in Seattle, when more than 15,000 signatures were secured in one afternoon.

The result of this effort shows that an aroused opinion can be depended upon for the adoption of measures to conserve the health of school children and of the public at large. The body of physicians, as a rule, lives too much within itself, paying too little attention to public matters, particularly those affecting the health of the people. The success of this movement was due to the concentrated efforts of the physicians of the state, coordinated and lead by organized efforts. This is an indication of what may be accomplished in the future along public health lines, provided the medical profession asserts itself as a leader and director of public opinion in matters of this nature. In order to insure utimate success in the suppression of this vicious legislative action, this same sort of activity must be maintained continuously. A year and a half of energetic public efforts are in contemplation on the part of the medical profession to obtain this result. As a corollary to this brief campaign, other similar efforts along educational lines in public health must be undertaken in the future and consistently presented for public consideration.

HEALTH INSURANCE.

Under various titles the subject of health insurance has engaged the attention of a great number of political economists, propagandists, social welfare workers, governmental commissions and individuals. The mass of material already in print dealing with compulsory health insurance, social medicine, social health insurance, state medicine, state sickness benefits or any title by which health insurance is designated, is amazing. Altho elaborate plans have been formulated to experiment with some form of state medicine and bills have been introduced into fifteen state legislatures within the last few years, so far there has been no statutory enactmment and health insurance in this country is still in the speculative stage. Just now there is a brisk controversy waging between proponents and opponents of health insurance. Commissions have been appointed in Ohio, Pennsylvania, Massachuesetts, New Jersey, Wisconsin, Illinois, Connecticut and California to study its advantages or disadvantages, with the purpose of advising the legislative branches of the governments of those states. Several hundred individuals are regularly contributing articles to professional and lay journals and are furnishing a mass of contradictory statements and statistics. One side attacks the motives and questions the accuracy of the observations and the validity of the conclusions of the other. The result is that the casual reader has no recognized source of authoritative information or impartial means of forming opinions.

The likelihood that the subject of health insurance will continue to be discussed by legislatures makes it imperative that the medical profession inform itself concerning every phase of it. No man is competent to predict when the subject may become a vital issue to the medical profession and the public generally in the Northwestern states, and common prudence should prompt the doctors to be fully informed before that hour arrives. When the workmen's compensation act was placed upon the statute books of Washington and Oregon, the medical profession was found unprepared. Since a solution of the health insurance problem probably must be made within the near future, a study of the question, while there is yet time, seems absolutely necessary. Health insurance may be defined as a form of insurance made more or less general by governmental compulsion or subsidy, which protects the wage earning class against the hazards of sickness. Since the insured include a greater part of the entire community, and the practice of medicine is regarded by the proponents of the scheme as a sort of public utility, it behooves the doctors to take a hand in its settlement, if they would control their own destinies.

The advocates of health insurance contend that it will relieve wage earners of a great loss and eliminate the lagest single factor in dependency; that it will extend the benefits of scientific medicine to those who are now unable to pay for such service; that additional efforts to prevent disease are necessary and that the existing agencies cannot meet these requirements. They aver that it will meet one of the industrial workers' most deeply felt needs. The arguments against compulsory health insurance are many and varied but of the mass it is possible to summarize as follows: It fosters social discontent and encourages socialism; it encourages malingering and will extend medical charity abuse; it does not protect those of advanced age and will not improve public health; it will result in class distinction and divide the people into groups, consisting of those eligible to take care of themsleves and those who need state help, and that generally it is bureaucratic and antagonistic to a democratic form of government.

The opponents of health insurance among the medical profession paint an alarming picture. Among the detrimental effects they aver that it will prevent individual development and research; dictate the terms of service; lower economic standing and necessitate overwork; encourage slipshod diagnoses and poorly considered treatment; discourage hospital care, study and treatment and generally lower medical standards and reduce physicians to the status of time servers and clock-punchers.

The predicted effects on the future o fscientific medicine should be sufficient to arouse the keen interest of every doctor. Whether all the dire results will be realized need not be determined at once; the the fact remains that the solution of the problem should not be made without consulting the medical profession. Unless the doctors are prepared, they can add nothing to the sum total of knowledge of the subject and their advice will not be taken seriously. It would be prudent to proceed on the assumption that health insurance will be a subject of legislative discussion in the Northwestern states within the near future and that the medical profession should be ready with organization and knowledge to take a leading part in its settlement. To command votes and to wield influence in the community requires organization and the means of reaching the people. The subject of social medicine has been ignored too long in our part of the country; it is time we get into the game and inform ourselves concerning its advantages and disadvantages and its effect upon the future of medicine.

NEW AND NON-OFFICIAL REMEDIES.

The medical profession does not always appreciate the work of the Council on Pharmacy and Chemistry, as demonstrated in their annual reports. The information contained in New and

Non-Official Remedies is such as cannot be found elsewhere. Beside the enumeration of remedies which are acceptable or have been rejected, many interesting reports are found in the volume for 1920 which has just been issued. The ordinary physician has absolutely no means of determining whether a new remedy presented by a pharmaceutical house possesses sufficient value to warrant his use of it. The reports of the Council serve the purpose of analyzing and testing all such products. The wise and discriminate physician will benefit both himself and patients by consulting this volume rather than going it blindly in the use of each new product which is offered him, many of which are accompanied by exaggerated and unverified claims of efficiency.

NEW ADVERTISEMENTS.

Attention is called to the following advertisements which appear for the first time in this issue, which we recommend to the careful attention of our readers. The Albatross Metal Furniture Company, of Portland, (pages 4-5) offers hospital and office furniture of a superior quality. J. B. Lippincott Company, publishers (page 15), present a new book for consideration. The Denver Fire Clay Company (page 27) furnishes laboratory supplies and bacteriologic apparatus. The University Extention Service of the University of Washington (page 17) offers its program for graduate medical lectureship during July. Jefferson Medical College of Philadelphia (page 13) announces its annual session for the coming year.

MEDICAL NOTES

OREGON.

New Medical Society Organized. Last month the Jackson County Medical Society was organized at Medford. It will meet the first and third Wednesday, every third meeting being held in Ashland. The following officers were elected: Pres., E. P. Pickel, Medford; Vice-Pres., F. G. Swedenburg, Ashland; Secy.-Treas., W. W. P. Holt, Medford. The program committee consists of Drs. Conroy, Thayer and Gregg. A committee was appointed to prepare a county fee bill.

Marion-Polk-Yamhill Medical Society held a meeting at Salem, May 18. A paper on "Puerperal Infection," was read by Dr. Mathieu, of Portland and one on "Blood Transfusion," by Dr. Harold Bean, of Portland. It was stated that a large representation of this society would attend the tri-state meeting at Portland.

Meeting of University of Oregon Alumni Association. This association will hold its annual meeting in Portland, May 31-June 2. A very interesting program of papers and clinics at the hospitals has been prepared. The commencement excercises of the University of Oregon Medical School follows this meeting. A memorial meeting will be held in this connection for Dr. R. C. Yenney who was a member of the Medical School faculty for twenty years, and at his death was head of the department of medicine.

Southern Oregon Medical Association held an interesting meeting at Grants Pass on May 10. The following officers were elected for the ensuing year: Pres., R. W. Clancy, Medford; Vice-Pres., F. J. Malmgren, Phoenix; Secy.-Treas., A. C. Seeley, Roseburg.

WASHINGTON.

Public Health League of Washington. The League for the Conservation of Public Health, of Washington, which has been in existence since last summer, has been incorporated. It has been deemed advisable to change the name to something more distinctive and characteristic. Therefore, the executive committee has adopted the name **Public Health League of Washington,** by which it will henceforth be designated.

Fire in Hospital. Last month a fire started at the Deaconess Hospital, in Spokane. The kitchen, located in a separate building, was burned but the fire was prevented from consuming the hospital, while a panic was averted among the patients.

Hospital Officers Elected. The following officers were last month elected to the staff of the Scared Heart Hospital, of Spokane; Pres., J. B. Munly; Vice-Pres., E. T. Richter; Secy.-Treas. Carrol Smith.

Hospital Plans Completed. Plans for altering the buildings at Fort Walla Walla have been completed. It will cost about $500,000. It is stated that the work will be rushed to an early completion.

Addition to Hospital. A large additional building is being constructed at the Pulmonary Hospital, at Riverton. The first floor will be used for administration offices for the staff, rooms for treatment, laboratory and x-ray apparatus. The second floor will be used as quarters for nurses. This building is a gift to the hospital from Mr. J. F. Duthie.

Hospital for Children. The trustees of the Orthopedic Hospital have announced that a medical ward is open for the reception of children under 14 years of age, which will be open to the patients of all physicians. The hospital management is anxious to have the hospital utilized by the general profession.

Cowlitz County Medical Society, at its meeting last month, passed the following resolutions:

Whereas, the Supreme Being has called to his everlasting resting place, our friend, and co-worker, Dr. Luther M. Sims,

Whereas, Dr. Sims has been a pioneer physician in this community, the main-stay and support of the Cowlitz County Medical Society, an active supporter of the State Association, and of medical legislation,

Whereas, Dr. Sims, for thirty years, among many hardships, and with many personal sacrifices, conscientiously and unselfishly practiced his profession in a community that, bowing to the will of an All-Wise and Inscrutable Providence, now greatly mourns the loss of their medical advisor, benefactor and friend. Therfore, be it

Resolved, that in the passing of this physician, scholar and gentleman, our society, the State Association and the community at large have sustained a great loss. Be it further

Resolved, that a copy of these resolutions be spread upon the minutes, a copy sent to the bereaved family with our sincerest condolence and sympathy, a copy sent to the local papers, and to Northwest Medicine.

Cowlitz County Medical Society.
Kalama, Wash. E. C. Hackett, President
May 11, 1921. Luman S. Roach, Vice-Pres.
C. J. Hoffmann, Acting Sec'y.

Lincoln County Medical Society held its annual meeting at Harrington April 28. The following officers were elected: Pres., R. P. Moore, Davenport; Vice-Pres., C. M. Chambliss; Secy., C. S. Bumgarner, Davenport.

Meeting of Nurses Association. The annual meeting of the Washington State Graduate Nurses Association was held last month at Wenatchee. Over thirty nurses were in attendance from various parts of the state. Several papers were read on nursing topics.

Where Will the Doctor Go? A Seattle physician recently sent a bill to a patient who replied to him as follows: "I received your statement of my account. Please be patient. I will pay you. If this was judgement day and you were no more prepared to meet your God than I am to pay this bill you would sure go to hell."

Appointed to Board of Health. Last month Gov. Hart appointed Dr. W. W. Brand of Prosser as a member of the State Board of Health.

Dr. A. E. Morefield has resigned as Health Officer of Wapato. The Mayor appointed as his successor County Physician H. H. Smith.

Dr. C. H. Weir, who has practiced for a number of years at Yakima, has moved to Rimrock, where he will serve as physician in the reclamation service.

New Health Office. Dr. E. J. Rhoades, of Walla Walla, has been appointed County Health Officer to fill the vacancy caused by the death of Dr. Blalock.

Dr. I. A. Nelson, who formerly practiced at Port Gamble, has located for practice at Poulsbo.

Medical Wedding. Dr. E. W. Garberich, pioneer physician and druggist of Spokane, aged 78, was last month married to Mrs. Jennie McCoy of that city, widow of a veteran of the civil war.

IDAHO.

To Enlarge Insane Hospital. Bids have been called for the construction of a psychopathic hospital building in connection with the State Hospital for the Insane, at Orofino. The estimated cost is about $70,000. The hospital will be fitted with modern equipment, including x-ray, hydrotherapy and electric apparatus. It will have a capacity of 64 beds.

The Northern Idaho Medical Society held a meeting at Lewiston, May 26, its first session since the war. Twenty-seven physicians were in attendance from Northern Idaho and Eastern Washington. Papers were read by Drs. Pennock, Epplen and Marshall of Spokane, and Crompton and White of Lewiston. The following officers were elected for the ensuing year: Pres., E. L. White, Lewiston; Vice-Pres., F. T. Harris, Lewiston; Secy.-Treas., L. J .Perkins, Lewiston; Delegate to the state meeting, W. H Carrithers, Moscow.

Converted into Sanitarium. The normal school, at Albion, is to be moved to Burley. Efforts are being made to convert the school building at Alboin into a tuberculosis sanitarium.

Dr. O. V. Lindhart, who has practiced recently in Bancroft, has moved to Prescott, Wash., where he has located for practice.

Doctor Injured. Last month Dr. J. L. Kelly, of Winchester, while visiting a lumber camp, was thrown from a speeder, dislocating the wrist joint and splintering the bone of the forearm.

OBITUARIES.

Dr. Yancey C. Blalock, of Walla Walla, Wash., died May 12, from pneumonia after a few days illness. He was born in North Carolina, in 1859. Later the family moved to Illinois. When he was 14 years of age they crossed the plains and settled in Walla Walla. He was educated in the public schools of that city and Whitman College. He graduated from Jefferson College, in 1884, from which his father graduated many years before. He was county coroner for three years and county physician for many years. In 1902 he was appointed Receiver of the U. S. Land Office and served for two years. He was prominent as a Mason and well known among Masonic circles of the state. At the time of his death he was county health officer and had just been appointed full time health officer for the city.

Dr. James Martin died at Halfway, Ore., May 1, of senility. He was born in De Kalb County, Tenn. in 1844. In his youth he moved to Missouri, where he practiced medicine for many years. He moved to Pine Valley, Ore., about 25 years ago.

Dr. P. J. Wiley, died at Portland, Ore., May 22, at the age of 39 years. He practiced in Portland for sixteen years.

REPORTS OF SOCIETY MEETINGS

KING COUNTY MEDICAL SOCIETY.

Pres. H. G. Lazelle, M. D., Secty., B. T. King, M. D.

A regular meeting of King County Medical Society was held May 2, 1921, in the Masonic Club Rooms, Seattle, Wash., Pres. Lazelle presiding. Minutes of the previous meeting were read and approved.

Papers

Treatment of Skull Fractures. By Dr. George Swift. He gave diagnostic points of various types of head injuries with discussion of pathology, symptoms, complications and treatment. He showed illustrating lantern slides. The paper was discussed by Drs. Mosiman and Mason.

J. W. Gilbert, Executive Secretary of the Washington League for the Conservation of Public Health, reported progress of the movement for Referendum No. 13. Dr. Neville stated the attitude of a recent meeting of the Elks in favor of the Referendum.

Firland Sanatorium. By Dr. Stith. He told of the organization of the Tuberculosis Division of the Health Department and explained the rules of admission of cases to Firlands.

Dr. Castlen reported a tribute paid to Firland Sanatorium by Dr. Musgrave and commended Dr. Stith for the excellence of conditions.

Contagious Diseases. By Dr. H. M. Read. He spoke of the action of the last legislature in passing destructive health legislation and urged united and vigorous action on Referendum No. 13.

Dr. Swift reported request from the Underwriter's Association that doctors put on campaign for Referendum No. 13 and that the Ministerial Federation requested same. Dr. Underwood suggested publication of pertinent statistics of local interest in Bulletin of Health Department. Dr. Kidd advised persistent publicity. Dr. C. F. Davidson commented upon apathy of the medical profession. Dr. P. C. West related experiences in getting signatures.

The applications of Drs. R. F. Hain, G. R. Marshall and O. R. Voss were read.

The second regular meeting of the Society was held May 16, Dr. Lazelle presiding. Minutes of the previous meeting were read and approved.

Dr. King presented a clinical case of mild myxedema.

The Etiology of Goiter. By Dr. Hall. He discussed the geological distribution of goiter and the theories and experiments in its production. He named the incidence as found among the students of the University of Washington and discussed the symtomatology of the common types. The paper was discussed by Drs. von Phul and Maud Parker.

The Treatment of Goiter. By Dr. J. C. Moore. He discussed the value of the metabolic estimation and the danger of overiodizing the patients. He spoke of the value of preoperative treatment and named the dangers accompanying operation and suggested means of avoiding them.

The paper was discussed by Drs. Willis, Tiffin, Parks, Davidson, Sweet and Horsfall.

Proposed changes in the By-laws were read and a motion was made to omit the reading of the Code of Ethics of the American Medical Association. Carried.

Myxedema. By Dr. King.. Dr. Mosiman showed lantern slides illustrating the pathology of myxedema. The paper was discussed by Dr. Leede.

Drs. Hain, Ross and Marshall were elected to membership.

SPOKANE COUNTY MEDICAL SOCIETY.

Pres., J. D. Windell, M. D.; Secty., O. M. Rott, M. D.

The eighth regular meeting of the Spokane County Medical Society was held in the Old National Assembly Room, Spokane, Wash., April 28, 1921.

Papers

The Value of the Roentgen Ray in the Diagnosis of Diseases of the Chest. By Dr. Joseph Aspray. He discussed the principal roentgen findings, illustrated with lantern slides, of various chest diseases. The paper was discussed by Drs. Lambert, Ward, Bennett, Epplen, McCarty, Miller and Corkery.

Chronic Osteomyelitis. Its Treatment by Radical Surgery and a Discussion of Cases. By Dr Eikenbary. He advocated radical excision with removal of sufficient tissue to insure that no infected areas remain and the use of Carrel-Dakin solution for instillation of the wounds.

The ninth regular meeting of the Society was held May 12.

Dr. F. Epplen gave an instructive demonstration of the following pathologic specimens: (1) Nephritis, pericarditis, mitral stenosis and encephalomalacia due to thrombosis of cerebral artery. (2) High degree of secondary contraction of kidney. (3) Pulmonary embolism from thrombosis of right auricular appendage. (4) Traumatic subcutaneous rupture of small bowel.

Papers

Suppurative Diseases of the Lungs, with a Report of Three Cases. By Dr. Basinger. This was an exhaustive and instructive paper. In closing he presented conclusions, summarizing the leading points. It was discussed by Drs. Lambert, Ward, Miller and Corkery.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

The Principles of Biochemistry. For Students of Medicine, Agriculture and Related Sciences. By T. Brailsford Robertson, Ph. D., M. D., Professor of Biochemistry, South Australia. Illustrated. Cloth, 663 Pp. $8.00. Lea & Febiger, Philadelphia and New York, 1920.

This new work treats of the relations of biochemistry to physiology and emphasizes the fact that physiologic chemistry is the essence of what we know as life. The practical application of the subject to medicine, the industries and general biology is particularly enforced. The book is more epecially designed for students of medicine in treating of the chemistry of foods—their digestion, assimilation and metabolism in the body. There are chapters on the properties of protoplasm and colloid substances, and the various changes, chemical and biological, which they undergo in living tissues. Chapters treat also of the chemistry of blood and lymph, and the chemical correlation of respiratory and digestive activities, chemical regulation of metabolism, and chemical correlation of organs of generation. Following these are many chapters on the chemical processes which underlie and accompany life pnenomena. The book closes with chapters on the biochemistry of waste products and consideration of the animal body as a machine. The whole subject is the very basis of the functions of life and one in which physicians, unless of very recent graduation, are necessarily and lamentably to a great extent ignorant. The work is of the highest scientific type and throly up-to-date. WINSLOW

Advanced Lessons in Practical Physiology, for Students and Practitioners of Medicine, by Russell Burton-Opitz, M. D., Ph. D., Associate Professor of Physiology, Columbia University, New York City. Octavo of 238 pages with 123 illustrations. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $4.00 net.

The object of this book is to teach physiology to the advanced student by means of practical experiments outside of didactic lectures. Each experiment is described by itself and abundantly illustrated. Between chapters are blank pages for suitable notes. Chapters are devoted to muscles and nerves, the blood, the heart, the circulation, respiration, the nervous system, the sense organs, digestion and excretion, with numerous explanations and details under each heading. This is an instructive and useful book for any physician as well as student. SMITH

Chemical Pathology. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph. D., M. D., Professor of Pathology in the University of Chicago, and in the Rush Medical College, Chicago. Fourth Edition, Revised and Reset. Octavo of 695 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $7.00 net.

Since the cell is the unit of the animal organism, one would expect much enlightment on general pathology from study of the pathology of the cell. However, this expectation is hardly realized. True, one moves a step farther into the region of the previously unknown but stops, surrounded by a haze like unto that surrounding the real way of most general pathologic conditions.

Both style and arrangement of this work are excellent. It considers the chemistry and physics of the cell, enzymes, the chemistry of bacteria and their products, chemistry of the animal parasites, vegetables, animal toxins, chemistry of the immunity reactions, chemical means of defense against non-antigenic poisons, inflammation, chemistry of growth and repair, disturbances of circulation and diseases of the blood, edema, retrogressive changes, retrogressive processes, calcification. concretions and incrustations, pathologic pigmentation, chemistry of tumors, pathologic conditions due to or associated with abnormalities in metabolism, including autointoxication, gastrointestinal "autointoxication" and related metabolic disturbances, chemical pathology of the ductless glands, uric-acid metabolism gout and diabetes. WINSLOW

Physiology and Biochemistry In Modern Medicine. By J. J. R. Macleor, M. D., Professor of Physiology in the University of Toronto, Canada. Assisted by Roy G. Pearce, A. C. Redfield, and N. B. Taylor. Third Edition, Cloth, 992 Pp. $10.00; 223 Illustrations and 9 Plates in colors. C. V. Mosby Co., St. Louis. 1920.

There are many changes in the present edition of this well known work. These include a rewriting of the section on the nervous system, together with an account of the fundamental principles of neuromuscular physiology. Also many additions have been made relating to the chemistry of respiration, including the effects of deficiency of oxygen on the respiratory center and clinical applications of this knowledge. New chapters have been added dealing with measurement of the functional capacity of the heart, the principles of ventilation and the therapeutic value of oxygen, together with chapters on vitamines, the capillary circulation, surgical shock, and on the interpretation of polysphygmograms. Much new matter has also been added relating to the endocrine organs. The subject of this monumental work is the basis of progress in modern medicine and this book may be highly commended. WINSLOW

A Manual of Surgery for Students and Physicians. By Francis T. Stewart, M. D. formerly Professor of Clinical Surgery, Jefferson Medical College, etc. Fifth Edition, with 590 illustrations. 1086 pp. $10. P. Blakiston's Son & Company, Philadelphia, 1921.

Dr. Stewart's manuscript of this edition was completed just before his death, and in it have been incorporated the military studies of W. Estell Lee. The text-book is familiar to students and practitioners as one which contains the meat of modern surgical knowledge, concisely expressed and well presented. This edition is in all respects modern, most of the chapters having been rewritten, some being entirely new. There is no need to further commend a work of such general excellence. FORBES

Eye, Ear, Nose and Throat. Vol. III. The Practical Medical Series for 1920, under the general editorial charge of Charles L. Mix, A. M., M. D. 382 pp. $1.75. The Year Book Publishers, Chicago, 1920.

This publication is one of a series of eight volumes published annually. This volume, as suggested by the title, covers a systematic and comprehensive review of the most important articles dealing with the eye, ear, nose and throat for the

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year 1920. The first 188 pages are devoted to the eye and is most ably edited by Casey A. Wood. Some 80 odd pages are devoted to diseases of the ear, by Albert H. Andrews, and the remaining 122 pages, covering diseases of the nose and throat, are by George E. Shambaugh. Altho this book is written primarily for the general practitioner, it is not without interest and value to the members of the different specialties. The comments and suggestions of the editors, specially in the section on the nose and throat, are valuable and timely.

CHASE

The American Year Book of Anesthesia and Analgesia. By F. H. McMechan, A. M., M. D., Editor. 483 pp. Surgery Publishing Co., New York, 1921.

This is the Year Book for 1917-18, delayed by the exigencies of the World War. "It is an extensive and comprehensive exposition of the subject of anesthesia. It contains a compilation of numerous papers from all parts of this country, England, Canada and Australia. There are groups of papers on complicating factors and safety factors in anesthesia, blood changes and circulatory disturbances under anesthesia. Many papers are presented on anesthesia in war surgery, local anesthesia in general surgery, in the specialties, denistry and oral surgery and obstetrics, sacral and spinal anesthesia. No volume on the subject of anesthesia has been observed which contains such an enormous amount of material as is offered in this publication.

SMITH

Physiological Chemistry. A Text-book, and Manual for Students. By Alfred P. Mathews, Ph. D. Professor of Biochemistry, University of Cincinnati. Third Edition. Illustrated. Cloth, 1154 Pp. 6.00. Wm. Wood & Co. New York. 1920.

Here we have another work on physiological chemistry, or biochemistry, which has gone thru eight reprintings, including three editions, since 1915. This book has already established itself as an authority and needs no further notice except to say that in the present edition the practical part has been largely rewritten and much new matter has been added, as blood analysis and the most recent accessions to our knowledge of vitamines.

WINSLOW

Feebleness of Growth and Congenital Dwarfism with special reference to Dysostosis Cleido-Cranialis. By Dr. Murk Janson, O. B. E. University of Leyden, Holland. 88 pp. Oxford University Press, London and New York, 1920.

This book aims to establish principles explaining the manner in which body growth is affected by injurious influence. The author aims to select "quantitative" changes in growth from pathology. He gives a standard for judging the "constitution" of men from size, altitude and gait, from the condition of his hands and feet. He endeavors to explain the laws and rules by which a large number of deformities are determined and the means by which they may be forestalled. Part I is devoted to the feebleness of growth; part II to congenital dwarfism. He lays special stress on dysostosis cleido-cranialis which is a defect or absence of the clavicles, associated with defects of other bones of the body. The book is profusely illustrated.

SMITH

The Medical Clinics of North America. Published quarterly. Price, cloth $16. paper, $12. W. B. Saunders & Company, Philadelphia and London, 1921.

These volumes bring to the physicians a textbook with postgraduate teaching from the nation's leading medical centers. Each number is devoted to the work of one center and contains the latest information on the subject mentioned. The Philadelphia Number, vol. 4, No. 4, contains papers by the eminent authorities of that city. Among other subjects are papers on calorimetry, pernicious, anemia, tophageous gout, the diaphram, aneurysm, retinal hemorrhage, nephritis, cerebral spinal syphilis, abnormal cardiac rhythms, carcinoma of the esophagus.

The New York Number, vol. 4, No. 5, contains papers from the leading practitioners of that city, treating, among other matters, multiple serositis, glycosuria, hyperthyroidism, basal metabolism, lobar pneumonia, blood transfusion, scarlatina, dyspnea and hyperpnea, and leukemia. Nothing can be found more instructive than the contents of these volumes.

SMITH

A Compend of Human Physiology. Specially adapted for the use of medical students. By Albert P. Brubaker, A. M., M. D. Author of the 'Textbook of Physiology," etc. Fifteenth edition with 26 illustrations. 264 pp. price $2. P. Blakiston's Son & Company, Philadelphia, 1921.

This latest edition of this well-known work contains rewritten material, new paragraphs and others revised. It presents a complete and convenient review of the essential facts of physiology and its bearing on some of the problems of clinical medicine.

SMITH

The New Pocket Medical Formulary. By William Edward Fitch, M. D. Late Major Medical Reserve Corps, U. S. A., etc. 3rd. edition, revised. 470 pp. $2.50. F. A. Davis Company, Philadelphia, 1921.

This is a handy volume for ready reference. It contains a useful collection of prescriptions for all diseases, arranged alphabetically, with a few suggestions for treatments. There are diet lists, arranged under alphabetical headings of diseases. A useful table of differential diagnosis follows. It has also a physician's dose table. No practitioner can carry everything in his head. He needs a volume like this at hand for daily reference.

SMITH

The Diagnosis and Treatment of Intussusception. By Charles P. B. Clubbe, L. B. C. P., M. R. S. S., Consulting Surgeon to the Royal Prince Albert Hospital, etc. 2nd. edition. 91 pp. $2.50. Oxford University Press, London and New York, 1921.

This is not an exhaustive treatise of this subject, but is based on an extensive experience of the author. It deals mainly with diagnosis and treatment. Special attention is paid to treatment by irrigation. Abdominal section and resection are described. An appendix contains illustrative cases of different methods of treatment.

SMITH

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ORIGINAL CONTRIBUTIONS

A ROENTGENOLOGIC STUDY OF PAIN IN THE RIGHT LOWER ABDOMEN.

James T. Case, M. D., F. A. C. S.

BATTLE CREEK, MICH.

Surgeon, Battle Creek Sanitarium; Professor of Roentgenology, Northwestern University Medical School, Chicago, Ill.

Observation of a large number of patients, presenting abdominal symptoms persisting or recurring after the removal of the appendix for so-called chronic appendicitis, naturally leads one to question the correctness of the diagnosis in many cases and, if correct, the degree to which the appendix was responsible for the abdominal symptoms. Review of the histories of all the patients, who passed thru the Roentgen Department of the Battle Creek Sanitarium during two months of one year, revealed the fact that one-fourth of them had undergone an appendectomy; with those relatively rare exceptions, in which the appendix had been removed for acute or for recurring appendicitis, the patient almost invariably complained of continuance or recurrence of the old symptoms upon which the indication for operation was based. Especial note should be made of the fact that the above statements do not refer to cases of acute appendicitis or of recurring attacks of pain in the right lower quadrant, associated with abdominal tenderness, fever and leukocytosis; on the contrary, the writer refers to a relatively large class of patients, where the principal indication for operative interference, usually appendectomy, was the existence of a chronic pain or distress in the right lower quadrant.

In the following pages the writer will attempt to discuss the roentgenologic aspects of colonic physiology and pathology which have reference to the explanation of this lower right quadrant pain. Particular emphasis will be laid upon the prolonged stay of food residues in the cecum and proximal colon, and the resulting right-sided pain, distention and fullness suggesting appendical involvement, due to some obstructing organic or functional lesion in the distal colon or rectum; and to the importance of studying carefully the entire colon, including the pelvic loop and the rectum before accepting, as the explanation of the right-sided pain, such relatively rare or inconsequential lesions as adhesions of the terminal ileum or cecum, fixation of the appendix, so-called Jackson's membrane, hepatocolic bands or membranes or a supposed ptosis of the transverse colon. That one or more of these processes in a serious form is occasionally encountered will be admitted, of course, but in a large percentage of cases of right lower quadrant colonic pain, the cause will be found in the distal colon.

---

*Read before the Forty-sixth Annual Meeting of Oregon State Medical Association, Portland, Ore., June 3-5, 1920.

The outline of the normal colon, (Fig 1), from the roentgenologic standpoint, is exceedingly variable and ever-changing. We must recognize that the stomach and intestines are not mere chemical retorts but functioning peristaltic organs, and it is with the motor function that, as surgeons and roentgenologists, we are most concerned, not the morphologic factors. Of the sum total of data concerning the colon demonstrable by x-ray observation, the estimation of ptosis is of least interest to me; since we regard a low position of any part of the colon as a symptom, as for instance, a result of weak abdominal muscles, not as a direct cause of stasis. We do not overlook the importance of a prolapsed elongated pelvic loop.

Under the fluorescent screen, during the sixth to the thirty-sixth hour following the ingestion of a barium meal, the gloved hand of the examiner, palpating thru the abdominal wall, should find the cecum and ascending colon fairly well movable, the two legs of the hepatic and splenic flexures separable, the position of the transverse colon easily altered and, in all but very heavy patients, the mobility of the pelvic loop demonstrable. Several observations covering these points should be made during the time mentioned, careful search being made at the same time for filling defects due to intra and extracolonic tumors. Similar palpatory scrutiny under the screen during and following the introduction of the opaque enema will serve as a valuable check on the foregoing study, especially if it is possible to tilt the fluoroscopic table into the Trendelenburg position, while the screening is in progress.

The position and shape of the transverse colon is especially variable, as was first shown by Rieder, who showed that this segment of the large bowel suffers a considerable dislocation due to turning and winding snake-like movements without any actual transportation of the contents of the bowel. The recognition of these dislocatory "large pendulum movements", as Rieder called them, will surely lessen the tendency to attach much importance to the exact position and shape of the transverse colon, and deter any surgeon from operations designed to fix the height of this portion of the bowel. For instance, at one observation the transverse colon may lie almost entirely above the umbilicus. Half an hour later, it may show a deviation downward to the left of the umbilicus. After another half hour, it may represent a "V" with the apex low in the right iliac fossa. And all this may have occurred without any shifting of colonic contents.

The prevailing movement in the proximal colon under normal conditions is antiperistaltic in its effects, tending to retain materials in the cecum and ascending colon. Under abnormal conditions there is no doubt that the antiperistaltic tendency is very greatly increased, as I will illustrate later.

The distal colon has as its characteristic activities churning and onward movements. Haustral churning is occurring constantly in the distal colon, serving to keep the materials in this region thoroly mixed and also aiding somewhat in the onward propulsion of the bowel mass. This churning activity is analogous to the segmentation which occurs in the small intestine. Churning is also accomplished by the large pendulum movements of Rieder above referred to and by respiratory action.

But the principal propulsive movement of the colon, serving to move the bowel contents from the antiperistaltic influences of the proximal colon into and thru the distal portion of the colon, is the spontaneous large contraction activity first described by Holsknecht, to which I applied the term "spontaneous mass movements". In this striking phenomenon the bowel outline suddenly loses its haustral markings (Figs 2, 3, 4, 5) and takes the shape of an ovoid, elongated, sausage-shaped mass with smooth edges, rounded at the ends. This mass at once begins to move at about twice the rate of peristalic waves in the stomach, the rate and distance traversed varying according to the case. I have seen such a mass travel from the cecum to the pelvic loop without a stop. When it does come to rest, the mass resumes its haustral indentations more or less rapidly, depending on whether the bowel contents are semi-fluid or of firmer consistency. These movements are often accomplished by gurgling sounds, the so-called borborygmi. That these large, sometimes stormy, movements are frequently seen in pathologic cases there is no doubt. The diarrheal cramps of man are often accompanied by these mass movements. Nevertheless, in most of the numerous observations I have made on these mass movements, the patient has not recognized any subjective sensation during the progress of the mass, except an appreciation of needing to defecate. It may be inferred, therefore, that the large colon movements

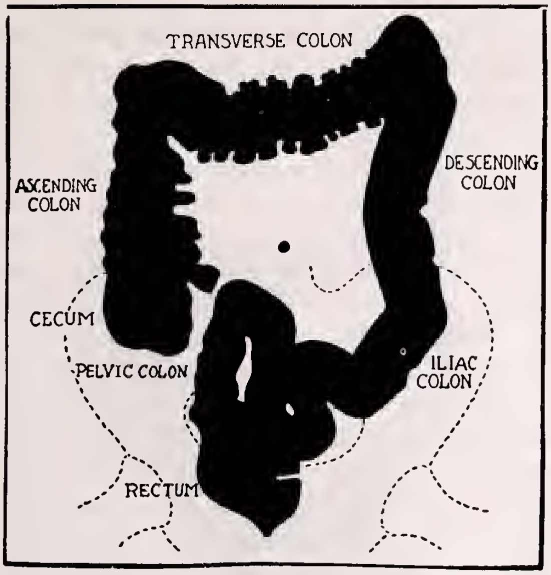


Fig. 1.

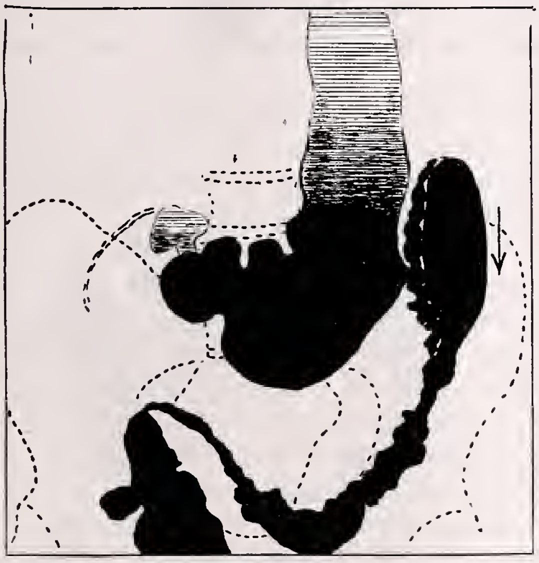


Fig. 3.

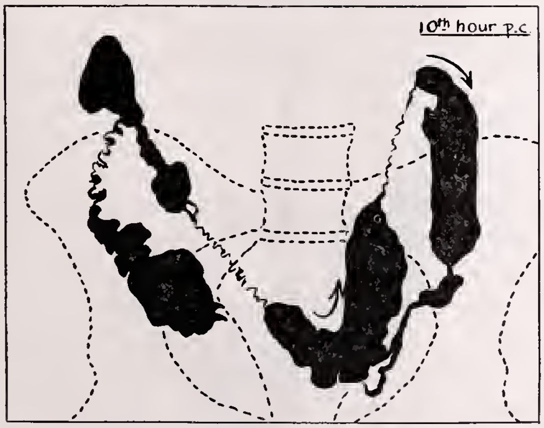


Fig. 4.

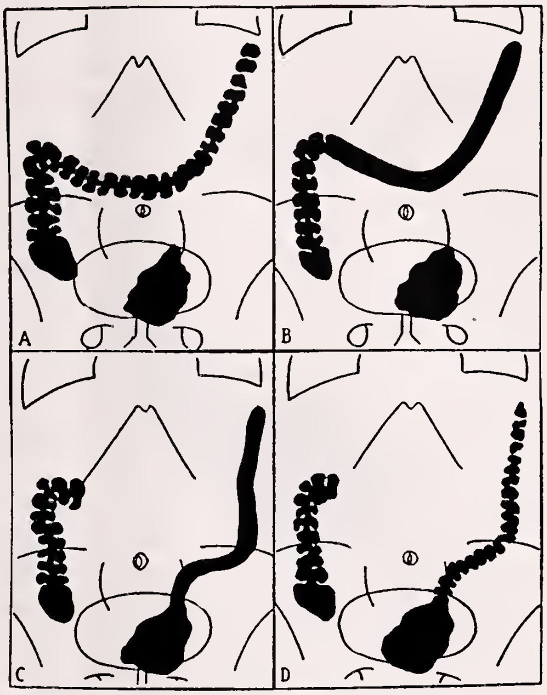


Fig. 2.

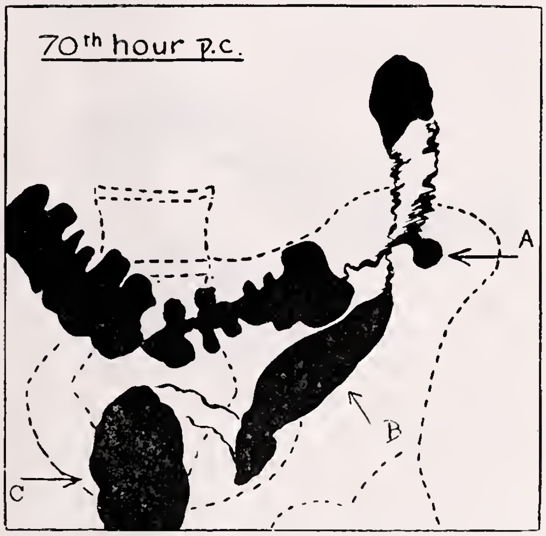


Fig. 5.

Fig. 1. A tracing from a roentgenogram of the normal colon filled by opaque enema, showing the divisions of the colon according to the present terminology. The cecum, ascending and transverse colon are named as usually understood. The descending colon extends from the splenic flexure to the iliac crest; the iliac colon from the iliac crest to the iliopectineal line; the pelvic colon from the iliopectineal line to the pelvirectal junction.

Fig. 2. Four drawings from Holzknecht's original article illustrating the mass peristaltic movement. In **a** the colon is uniformly filled from cecum to splenic flexure and the indentations due to the haustral contractions are nicely seen. In **b** these haustral markings have disappeared from the hepatic flexure to the splenic flexure. In **c** the content of the transverse colon has moved over into the descending and iliac colon, the haustral markings not yet having appeared. After some minutes, fifteen or twenty, the haustral markings reappear, as shown in **d**.

Fig. 3. An active mass peristaltic movement (colon filled by opaque meal), shown at arrow. This mass began at the hepatic flexure, rapidly traversing the transverse colon and the splenic flexure. Within a few seconds it will reach the rectum.

Fig. 4. Colon ten hours after meal. Two mass movements in progress at the same time. The thinned-out areas between the masses represent the contracted colon with thin traces of barium left behind.

Fig. 5. At B, a mass movement in the descending colon traveling toward the rectum, where the ampulla is dilated with one or more previous but recent mass movements. At A, a solitary diverticulum of the colon.

have a relation to bowel evacuation; they are most constantly seen before or during defecation.

The foregoing remarks have all had reference to observations made after the ingestion of an opaque meal. During and following the opaque enema one frequently sees a large ring constriction passing along the colon distalwards and sometimes in the antiperistaltic direction. In cases of colonic spasticity a relatively small enema will start up ring constrictions which in mass, speed and depth resemble the mass movements above described—the large colon movements of Holzknecht. They seem definitely the result of distention and are seen to begin most often at the cecum.

Further factors in the foreward propulsion of colonic contents are the filling and emptying of the stomach and especially of the colon itself. Respiratory movements also exert a certain effect.

Among the various phenomena brought about by peristalsis under normal and pathologic conditions are several which may cause serious diagnostic error, if allowed to go unrecognized. Of the more important possible errors, the following will be discussed in this paper:

1. Pseudo-filling defects due to peristaltic activities, simulating the defect produced by neoplasms.

A confusing gap in the colonic shadow, suggestive of a filling defect due to carcinoma, is most likely to occur on a roentgenogram of the colon after an opaque enema and will most often be seen in the ascending colon or in the iliac colon. Error will be avoided if one supplements the plate by a screen examination, and particularly if the injection be done under intermittent screen control.

A somewhat comparable pseudo-filling defect may be simulated by the presence of collections of air inadvertently injected along with the opaque enema; when the patient lies prone, as is customary during the exposure of the plate, the air seeks the highest attainable segments of the colon. In the prone position, this is likely to be in the middle of the ascending colon and in the upper half of the descending colon. Here, again, the avoidance of error will be easy.

2. Proximal colon stasis, especially cecal stasis, due to exaggerated antiperistalsis, which may be incorrectly attributed to membraniform or band adhesions involving the cecum, ascending colon or hepatic flexure, or to the supposed prolapsus of the transverse colon.

It is interesting to note that, during the development of operations for the surgical relief of intestinal stasis, the tendency has been to look more and more to the distal colon as the seat of obstruction. Early discussions on intestinal stasis mentioned adhesions of the terminal ileum and of the cecum and appendix. Pericolic membranes next held the stage, and many operations, some useful, many meddlesome, were performed under the belief that the cecal stasis demonstrated by x-ray study was due to loose adhesion bands about the cecum and ascending colon, or between the gall-bladder, inferior surface of the liver or duodenum and the hepatic flexure of the colon. A very early fallacy was the notion that, if the transverse colon reached a point below the umbilicus with the patient in the erect position, the drag on the relatively fixed hepatic or splenic flexure produced kinking at the flexures and resulting obstruction. Many operations were devised for lifting the transverse colon; such of them as produced fixation interfered with both the large colon mass movements above described, and the large pendulum movements of Rieder.

All of the above mentioned pathologic states, such as pericolic membranes (figs. 6, 7, 8), carcinoma or tuberculosis of ascending colon (fig. 9), adherent appendix (fig. 21), or hepatocolic bands may with relative infrequency become causes of cecal delay; but I have come to believe that the cause of exaggerated antiperistaltic activity with resulting stasis in the proximal colon, especially in the cecum and ascending portion, will usually be found in the distal colon, most likely in the pelvic colon or rectum. Commonly the obstruction will be functional, due to enterospasm; yet in a considerable percentage of cases it will be found to result from adhesions of the pelvic loop, the pressure of large pelvic tumors, carcinoma, peridiverticulitis, incarceration of a prolapsed redundant pelvic colon, or to rectal lesions, such as hemorrhoids, fissure, rectal ulcers, proctitis or rectal atony.

In a large percentage of cases we observe that the patient can empty the rectal ampulla and more or less of the pelvic loop, but no more. On reexamination it is characteristic that the point of apparent hindrance is always the same, and may be described as occurring at the pelvirectal junction, the middle of the pelvic loop or just below the iliopelvic junction, as the case may be. Such hindrance is often explained by fixation, usually

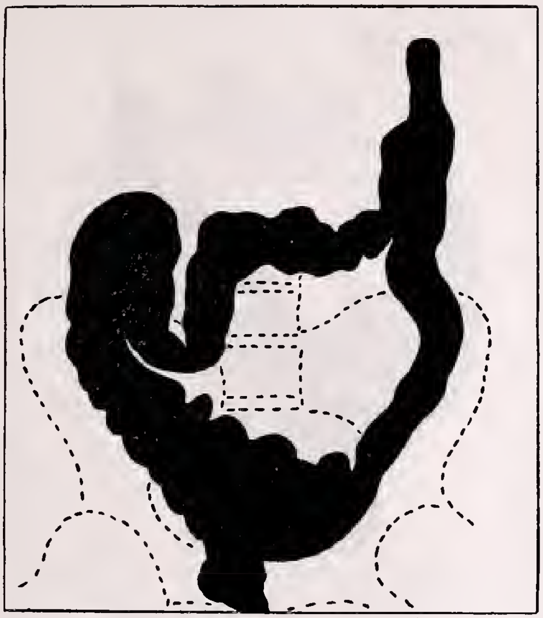


Fig. 6.

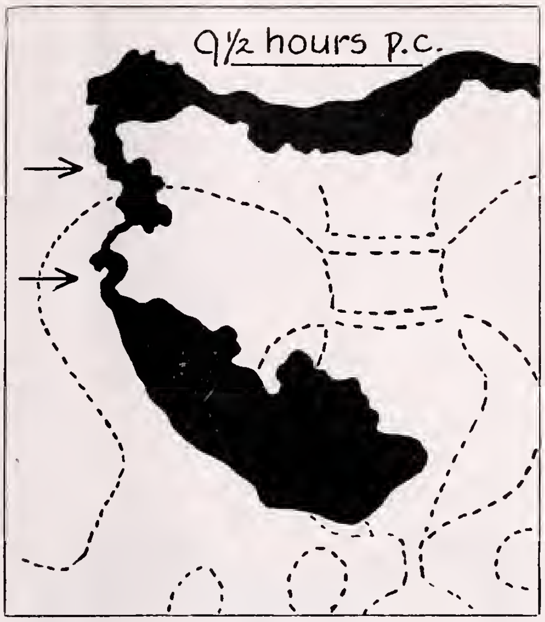
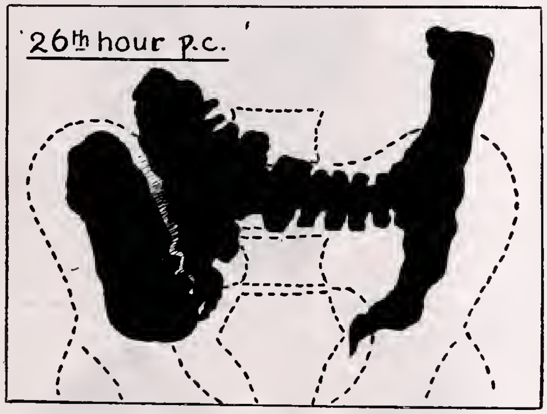


Fig. 7.



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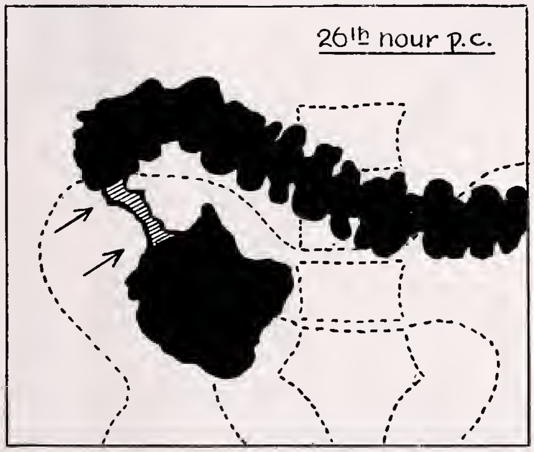


Fig. 9.

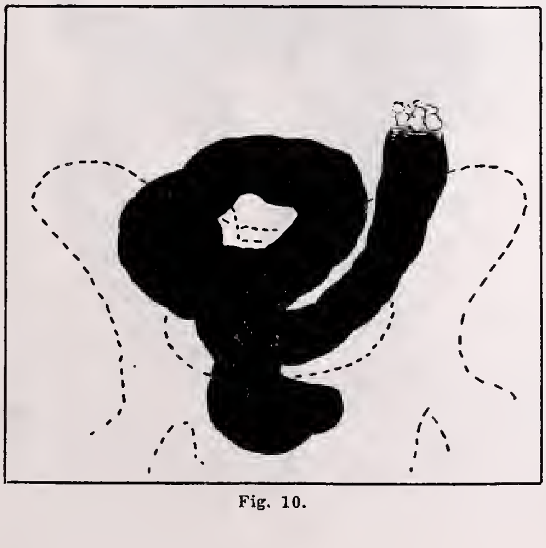


Fig. 10.

Fig. 6. The colon after opaque enema. Note the marked distention of the cecum and ascending colon and the curious shape of the right half of the transverse colon. There were numerous adhesions between the two legs of the hepatic loop, causing a relative obstruction at the hepatic flexure.

Fig. 7. Markedly dilated, atonic cecum, due to constriction of the ascending colon by Jackson's membrane. This roentgenogram was made at nine and one-half hours following the barium meal, showing the delay in the cecum.

Fig. 8. A case similar to figure 6. Numerous omental adhesions binding together the ascending and first portion of the transverse colon, with marked proximal colon stasis.

Fig. 9. Carcinoma of the cecum, the tumor (shown at arrows) projecting into the lumen of the colon, making it impossible for the colon to fill out normally. This ragged, annular filling defect is characteristic of a carcinoma. Note cecal stasis.

Fig. 10. Carcinoma of the descending colon. The rectal ampulla and the sigmoid are widely filled by opaque enema, up to the cauliflower-like filling defect in the descending colon characteristic of sigmoid carcinoma. (See figure 11).

by adhesions, of a part of the colon which is normally mobile; and by careful screen observation of the colon before and after defecation and in connection with the barium enema test, both during its injection and after its expulsion, we may determine with reasonable accuracy the presence of such binding adhesions. It may be wiser to speak of the condition as abnormal fixation, admitting that a certain degree of fixation may be within normal limits.

Enterospasm is often associated with distal colon adhesions, or it may be an expression of irritation through the central or sympathetic nervous system; or there may be a colitis (figs. 16, 17, 18, 19) or a diverticulosis (fig. 20). Consideration of pelvic colon adhesions as a cause of colonic stasis, often associated prominently with cecal distention and stasis, suggests an inquiry into the advisability of employing the pelvic colon to cover up raw or sutured surfaces after certain pelvic operations, such as hysterectomy or salpingo-oophorectomy. No objection is raised to covering raw surfaces with the aid of the pelvic colon, providing this organ is allowed to fall into its natural position in so doing; but in this procedure one often sees the pelvic loop of colon crowded down in a manner to invite the very kind of abnormal fixation just discussed.

3. A point of arrest in the transverse colon just proximal to the midline (figs. 14, 15, 16, 17)

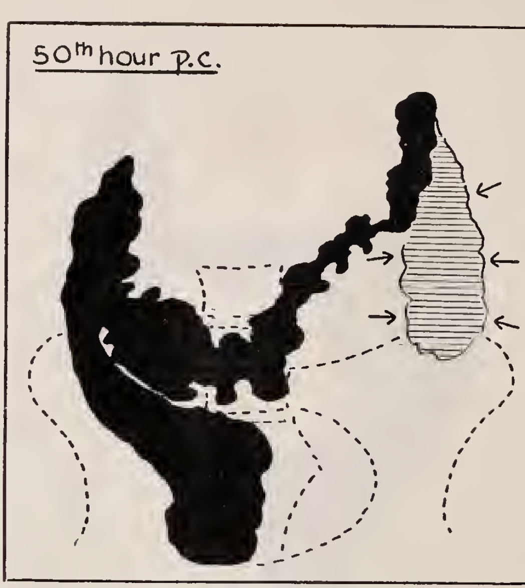
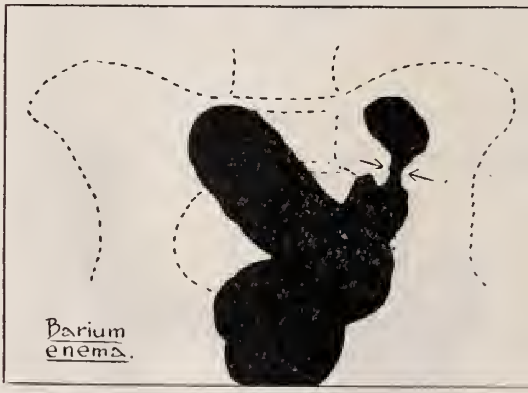


Fig. 11.



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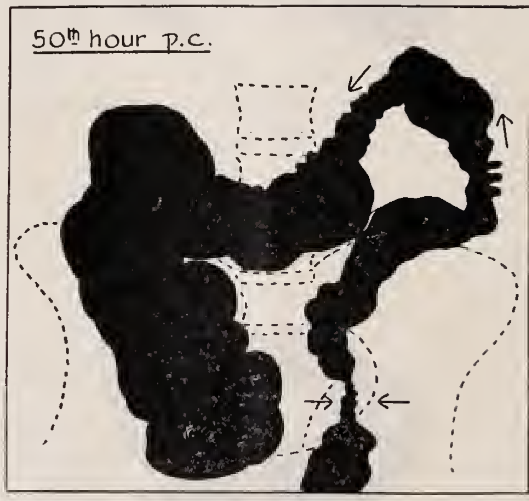

Fig. 13.

Fig. 11. The case shown in figure 10 was given cleansing enemas to clear the sigmoid of apaque residues, and then a barium meal. Fifty hours later we see the above picture: Some gas and fluid just above the site of the carcinoma in the descending colon, most of the barium banked up in the cecum and ascending colon as far from the tumor as possible—evident antiperistalsis.

Fig. 12. A case similar to that shown in figure 10. Carcinoma of the sigmoid colon shown in the defect noted at arrows. Colon filled by opaque enema. (See figure 13).

Fig. 13. Same case as figure 12. Lower colon cleared of barium residues by cleansing enemas. Barium meal administered. At the fiftieth hour, the above appearance was shown. In this instance, actual antiperistaltic waves were seen in the descending and transverse colon as indicated by arrows, traveling toward the cecum.

Fig. 14. Terminal ileum and colon nine and one-half hours after the opaque meal. Notice the sharp line of demarkation between the barium-filled and the empty colon which the writer believes coincides with Cannon's ring. (See text). Appendix filled by barium in this instance.

Fig. 15. Similar findings to those described in the case illustrated in figure 14. Cannon's ring shown at arrows.

Fig. 16. Cannon's ring shown at arrows. Evidence of marked proximal colon delay and distal colon spasm. The more spastic the distal colon, the more marked the Cannon's ring and the more considerable the proximal colon delay.

Fig. 17. Cannon's ring again shown at arrows. in this case, seventy-four hours following the meal. The most marked residue occurs in the proximal colon—evidence of exaggerated antiperistalsis.

Fig. 18. Characteristic appearance of spastic col
when filled by opaque enema, showing marked spa
ticity of the iliac and pelvic colon; marked dilatati
of the right half of the bowel.

Fig. 19. Characteristic appearance of spastic col
when visualized by opaque meal, roentgenogram ma
at the fiftieth hour following the barium meal. No
the isolated boluses characteristic of the spasticit
which is especially marked in the pelvic colon. (S
figure 18).

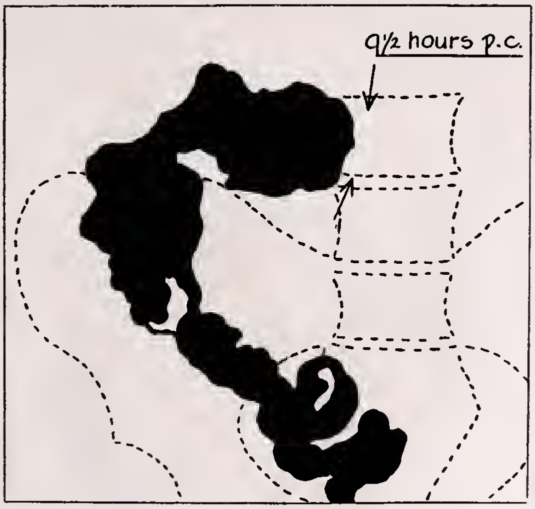

Fig. 14.

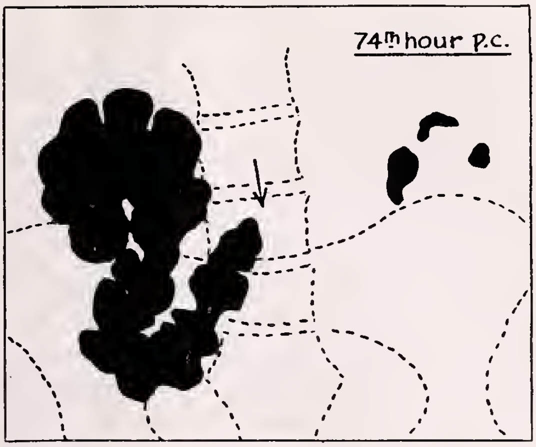

Fig. 17.

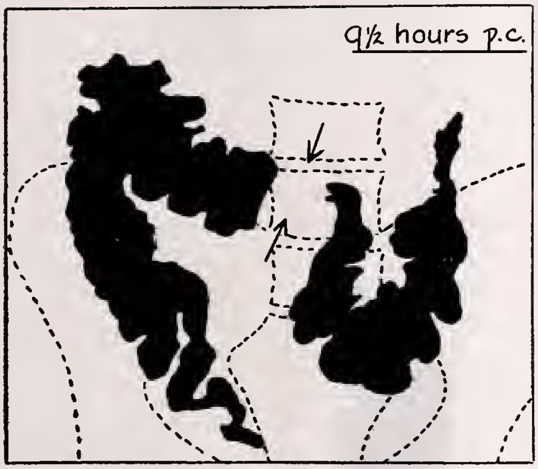

Fig. 15.

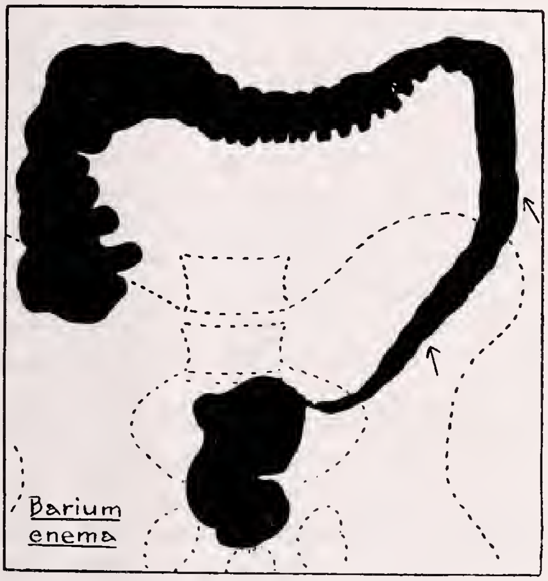

Fig. 18.

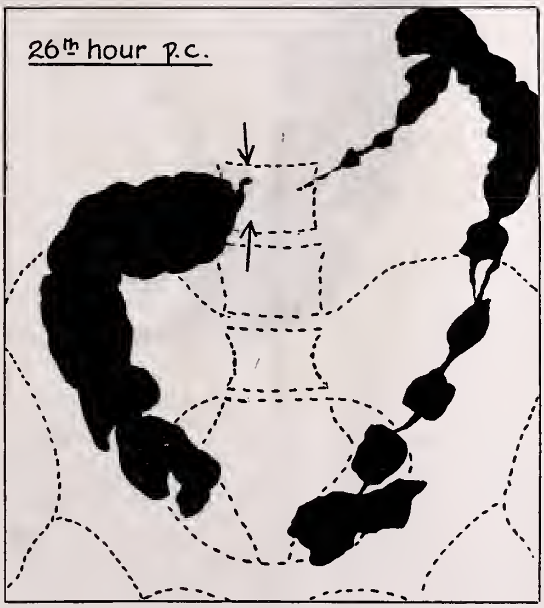

Fig. 16.

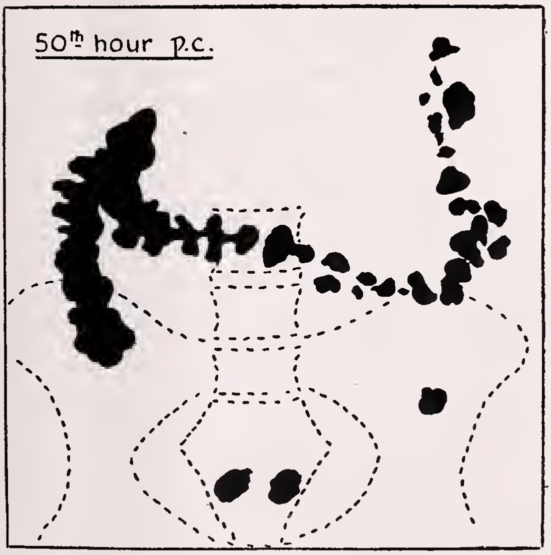

Fig. 19.

which may be erroneously attributed to an organic obstruction.

The clinical studies of Roith on peristalsis and antiperistalsis in the large intestine led him to conclude that between the hepatic flexure and the middle of the transverse colon there exists a zone, on the distal side of which antiperistalsis does not occur, but on the proximal side of which both peristaltic and antiperistalic movements may take place. Cannon, Elliott, Barclay Smith and Jacobi all describe a tonic constriction ring at about this point in the colon, which, when stretched by distention of the bowel, begins to pulsate.

4. Chronic obstruction may be simulated by the disposition of the opaque residues shortly after a mass movement which has cleared the distal colon below a certain point in the descending colon (figs. 4 and 5). The normal evacuation of the bowels clears the colon only below the splenic flexure; immediately following such an evacuation is the most favorable time for observing the mass peristaltic movements, apparently an effort to carry the contents of the transverse colon over into the empty descending and iliac colon. Thus the disposition of the contents of the descending colon may sometimes be peculiar, suggesting an obstruction. Repetition of the examination or repeated fluoroscopic observations will, of course, rule out any error arising in this connection.

Further, it must be recognized that the evidence obtained by x-ray study constitutes only a part of the medical examination of the patient and should be interpreted in the light of the history and other physical and laboratory findings.

Careful consideration of the foregoing physiologic data, all of which is explained so nicely by the theories of Alvarez, of San Francisco, will lead to the conclusion that, while pain in the lower right abdominal quadrant may be due to an acute or chronic appendical involvement, it may, on the other hand, be explained by the distention of the cecum and ascending colon which naturally results from the increased antiperistaltic influence set up by obstruction in the distal colon. The obstruction may be organic in nature (colonic tumors, extraconic tumors, rectal disorders, adhesions of the pelvic colon, peridiverticulitis, etc.) or it may be functional, due to spasmodic manifestations in the distal colon; indeed it may result from a combination of the two types of factors just enumerated. These facts expla the frequency with which the patient is disco tented with the results of an appendectomy, pe formed for the so-called chronic appendix.

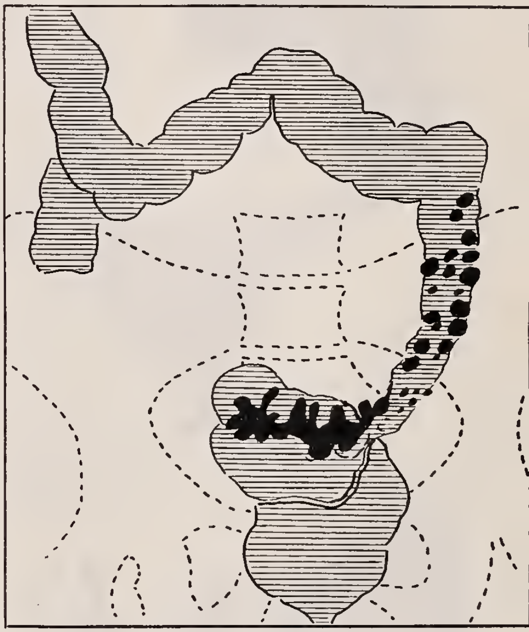

Fig. 20.

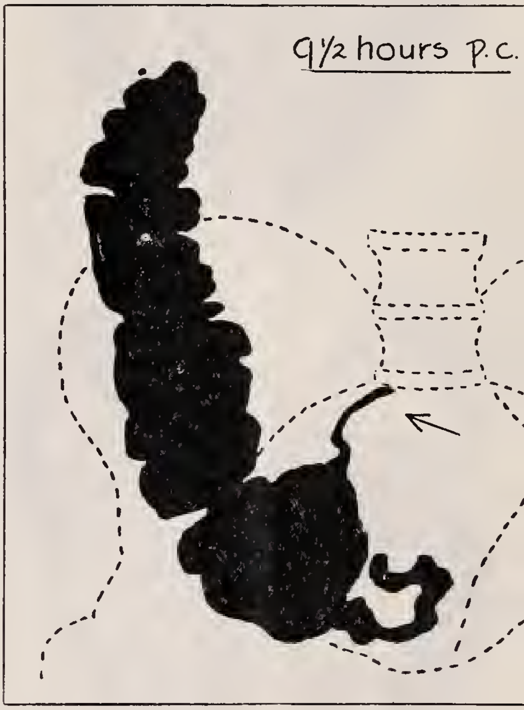

Fig. 21.

Fig. 20. Roentgenogram seventy-five hours after opaque meal and immediately after the opaque ener in a case of multiple diverticula with tumor in t left iliac fossa. In this instance, there was mark stasis of the cecum and ascending colon. The round denser shadows are caused by the retention of t opaque meal residues in the diverticula.

Fig. 21. Barium-filled appendix, adherent, shov fluoroscopically to be adherent and pointing upwar Best demonstrated in this case nine and one-half hou following the opaque meal. It was shown to reta barium three days later; hence it is poorly drained.

THE RELATIVE FIELDS OF RADIUM, SURGERY AND CAUTERY IN THE TREATMENT OF CANCER OF THE CERVIX.

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PORTLAND, ORE.

One of the most withering and discouraging experiences surgeons have had to meet has been the surgical treatment of cancer of the uterus, particularly cancer of the cervix. As is usually the case, the published reports have been given chiefly by the ablest men, therefore the discouraging statistics at our disposal are undoubtedly even much too flattering, when compared with actual operative results as a whole.

When we consider all cases of cancer of the uterus, it is difficult to determine by statistics how many of these cases are operable. For example, some operators have reported that only five per cent of their cases applying for treatment have been operable; others have reported that ninety per cent have been operable. These represent extreme and evidently unreliable statistics.

Janeway, studying 5,027 cases reported in the literature, found that 34.21 per cent were operable, and of the cases comprising the 34.21 per cent, 18.23 per cent died from the operation, and 19.32 per cent of the cases traced were cured for a period of from three to five years. Approximately only 11 per cent of the cases applying for treatment in this large collection were known to have been cured from three to five years and over, and some of these were left with troublesome fistulae. A poor showing when we consider that cancer of the cervix is very accessible for treatment as far as location is concerned.

Looking at these facts, it is apparent that no surgeon materially enhances his reputation with the public by his work in the surgical treatment of cancer of the cervix. In fact, it is very probable that our surgery for these cases has detracted more from our reputation as surgeons than it has enhanced it, altho on close study of the subject we must concede that the 11 per cent of cures we have produced are net gain in human life, and many others have had life extended and have been made more comfortable. Even those patients who died under the operation attempting to get well have been spared a miserable ending.

Men of such large experience as Clark-Kelley and others, who have used both surgery and radium in their past experiences, have reached the conclusion that radium alone is more effective and less fatal than surgery alone in the treatment of cancer of the cervix, and that surgery must be considered as of secondary importance except in a limited number of cases. A number of authorities on radiotherapy are even so enthusiastic as to believe that surgery is not justifiable at all in treatment of cancer of the cervix, if radium is available.

I have recently made the statement in another article that cancer must be considered a surgical disease. This statement must be modified in the treatment of cancer of the cervix, and agree with Clarke and others that the chief agent to be used is radium, except in the slightly more than 10 per cent of cases consulting the surgeon, while the disease is yet confined to the uterus.

There is a stage at which the growth is advanced to a point where some surgeons call it inoperable, while other surgeons of seeming equally good judgement consider it operable. This is one of the most frequent stages of uterine cancer at which the surgeon is called into the case. Experience will show that only a small percentage of these cases are permanently cured by surgery or even have life materially lengthened. In other words, the case is operable but not surgically curable.

By the aid of radium, on the other hand, if judicially combined with surgery, we are able to hopefully treat many more cases. So enthusiastic am I, that I feel sure these border line cases, which usually prove to be surgically hopeless, may be more hopefully treated by radium combined with surgery than the frankly operable cases are now treated by surgery alone. Not all of the reported good results of radium alone are as good as they seem. I recently had a letter from a doctor in a small town, who asked me if radium always produced abscesses in the broad ligaments. He stated that the only two cases he had sent away for radium treatment had had this complication, altho apparently the cancer had been checked. During the past year I have operated upon two cases which had been treated elsewhere with radium, and in which the cervix had become entirely closed and pus had accumulated above the healed growth.

Microscopic examinations of uteri removed after radium treatment have frequently shown that the cancer cells are not all dead. Live cancer cells are often found encysted in the remote fibrous tissue formed by the action of the radium—even the clinically cured cases. Therefore, it is very probable that the cures reported are many times not permanent. In some of my cases the cancer is arrested in the cervix, but is definitely extending higher up.

Clark has stated on more than one occasion that we should never operate on a recurring cancer which we have supposedly cured by radium. I think it has been the experience of most operators that, where the uterus is removed some months after radium treatment, the cancer may light up and grow again. Many of the border line cases have extensions of the cancer into the broad ligaments beyond the reach of the radium rays.

Certain operators now use one heavy dose of radium inside the uterus and cervix, followed by operation about a week later. This method is ideal for cases in which the cancer involves the cervix only, or even has a moderate extension into the broad ligaments, but is incomplete where the cancer cells have extended far into the broad ligaments. Many of the cases coming to us for treatment belong to this latter class and, if we are to treat them with hope of permanent cure, we must in some cases combine surgery with more thoro radiation.

In describing this technic, however, it is well to first discuss the surgical technic as we have been using it. More than twenty years ago I began to perform vaginal hysterectomy for cancer of the uterus. The cancer recurred in most of these cases, but operative mortality was not as great as in our later work in which we did the radical abdominal operation.

About 1911 I took up the radical Wertheim operation, but was soon convinced that it should be modified, and that we could use a modified operation with less than half the mortality and with practically as good final results. All conservative operators now agree that, when the lymphatics along the pelvic walls and along the great vessels have become involved, there is practically no hope of permanent cure, no matter how radical the operation. Therefore, why unnecessarily mutilate the patient and increase the mortality? It is probably true that much of the mortality following the radical operations has been due to infection from the septic uterus, and many of the recurrences have been due to reimplantation of live cancer cells on fresh raw surfaces. Hence the importance of cauterizing the uterus as a preliminary step to operation.

It has, therefore, been my plan for several years, first to cook the cervix with the Percy cautery thru a water cooled speculum. This has usually taken about three-quarters of an hour, and is done with the abdomen open, so the assistant can determine the amount and location of the heat. After this cooking process the attention is turned to the abdomen. The broad ligaments are doubly clamped and cut between the clamps external to the ovaries and tubes. The clamp external to be cut gradually approaches the uterus at the point of the clamp but does not control the uterine artery; therefore, another clamp is placed along side the cervix lower down. Gauze is now packed all around the wound, covering the clamps and tissues of the abdominal wall, and taking particular care to push the bladder as far out of the way as possible, and to amply protect the rectum and sigmoid from the heat with gauze. An opening is now made in the fundus of the uterus and the cautery point thrust into the cavity and the point pushed down into the cervix, at a higher temperature than was used in the cervix below, until the uterus is cooked sufficiently to prevent dissemination of live cancer cells. The burned uterus is then removed, after which the clamps are allowed to remain and the handles are brought out thru the lower angle of the incision. A layer of wicks of gauze is then laid across the pelvis in the form of a quarantine pack, also round the forceps in front. This pack is then protected by four layer sheets of heavy gutta percha tissue, thus completely quarantining all the pelvis from the intestines and the abdominal cavity proper. Forty-eight hours later the clamps are removed. Six days after operation the gauze is removed, the gutta percha tissue being allowed to remain a week longer. Any burned tissue remaining sloughs away without danger of hemorrhage, such as Percy has experienced when the cooked uterus was left. This form of treatment has been a decided improvement both as to mortality and to permanent result on any surgery we have used.

Since I have begun to use radium I have gradually developed the following technic. When the patient enters the hospital with an advanced cancer of the cervix, a dose of about 2 to 3000 mgm. hours of radium is applied to the cervix and inside of the uterus. A week later a similar dose is used. About four to seven days later the operation is performed in the manner described above by cooking and removal except that the cooking thru the vagina is limited to the simple destruction of necrotic tissue, or is omitted entirely. After the clamps have been placed and the uterus thus removed, radium is placed so that its rays are directed into the base of the broad ligament as follows:

A 50 mgm. tube of radium is screened in one millimeter of brass. This brass tube is drawn into a thin rubber tube. This rubber tube is drawn into a larger rubber tube. On one side of the large rubber tube a concave plate of 2 millimeters of lead is fastened, so as to shield the upper abdomen in every possible way from the action of the radium. This tube is inserted down on the back of one broad ligament, just outside the clamp. A similar tube is prepared for the other broad ligament. A 25 mgm. tube is placed in another rubber tube and placed on top of each broad ligament, directing its rays downward toward the back as the patient lies on the table. The protected quarantine pack is made thicker immediately above the radium, so that the intestines will be held well away from the radium, altho it is protected by 2 millimeters of lead. The quarantine pack should surround the clamps and tubes on all sides and should protect the bladder from the radium. The ends of the rubber tubes containing radium are brought to the surface with the gauze. Thus 150 mgm. of radium is left in the abdomen for ten to twenty hours, but the dosage at this time depending on the amount of reaction which followed the preceding in the reaction of radium in different patients. The clamps and the protected gauze pack are handled just as has been described above.

For my early cases treated in this way, I used a smaller amount of radium for a longer time. Since I have procured a larger amount of radium I am using a larger amount, and removing it in a shorter time, as the prolonged presence of radium seems to make the patient much more uncomfortable. In using 150 mgm. at one time the effect of the radium may be obtained and the radium removed before the patient has really become severely conscious of the discomfort of the radium. Some patients react very severely to radium. If this reaction is marked after the preliminary application, the intraabdominal dose should be correspondingly reduced.

Radium reaction is manifested by fever, rapid pulse, restlessness, general discomfort and sometimes chills. After the wound has properly healed, before the patient leaves the hospital, it may be advisable to give one more well screened dose of radium, applied in the upper end of the vagina. By thoroly screening the radium, both with metal and by distance, which is produced by gauze packing, there is no probability of injury to the bladder or rectum. While we have been developing this technic less than two years, I think we can safely say that the results so far are very promising.

Some feel that deep x-ray therapy offers an additonal safety. We are installing this equipment, and appreciate its importance in certain cases, but in treating cancer deeply located in the cervix and broad ligaments, we feel much as we did in other years when we put an extra ingredient in one of our famous "shotgun" prescriptions. Cancer of the cervix is located in one of the least accessible places for the use of the x-ray.

SUMMARY.

Speaking from the standpoint of a surgeon we may divide cancer of the cervix, for the purpose of treatment, into four divisions, namely:

(1). Cases for surgery.
(2). Cases for radium, surgery and cautery.
(3). Cases for radium alone.
(4). Untreatable cases.

(1). Judging from statistics and our own experience, it is probable that between 10 and 20 per cent (certainly not more) of patients with cancer of the cervix consult the surgeon, while the disease is still limited to the uterus. These cases may be considered strictly surgical, altho application of radium preceding the operation is probably a good prophylactic measure. My opinion is not in accord with those who believe that the early local cases of cancer of the cervix should be treated by radium alone. It is a curious fact that occasionally early cancers are actually stimulated by radium, altho this is not the rule. It seems entirely possible that the height of bodily resistance to cancer is reached after considerable development of the growth has taken place. If this is true, it is likely that the most effective time for application of radium as a curative agent is after the maximum resistance has been established. At least there is not sufficient evidence at the present time to justify a conservative surgeon in abandoning surgery for radium in the very early cases.

(2). Probably 40 to 50 per cent of cases consult the surgeon soon after the appearance of an offensive discharge, at which time the growth has usually extended beyond the uterus proper, but has not hopelessly involved the surrounding tissues and organs. In a certain proportion of these cases the cervix has become so diseased that it is dangerous or impossible to introduce radium into the fundus of the uterus, and thereby destroy its function. The procedure which we have described in this paper, as combining radium, surgery and cautery, is applicable to this particular class of cases. Where it is possible to introduce radium into the fundus simultaneously with its application to the cervix, it is probably safer to use radium alone.

(3). Cases for radium alone. This class should be subdivided into two groups. (a). Localized or moderately advanced cases which would otherwise belong in classes 1 and 2, but which are not good operative risks on account of age or concurrent diseases. (b). Very far advanced cases, presenting distressing symptoms, such as hemorrhage, pain, etc., which should be treated for the palliative results obtained by radium. Occasionally one of these very far advanced cases presents surprisingly good results, even apparent cure.

(4). Probably 10 to 20 per cent of cases are hopeless because of metastasis, involvement of neighboring organs and because of the general hopeless condition of the patient. Radium should not be used in such cases, even as a palliative remedy, as it can do no real good, and will bring discredit upon radium as a therapeutic agent. Morphine is the remedy in such cases.

It is probable that no conscientious surgeon who is thoroly familiar with the action and results of radium treatment could at the present day accord surgery a more important position in the treatment of cancer of cervix than is given under this classification.

Cure of Infantile Rickets by Sunlight. Infants have been exposed by Alfred F. Hess and Lester J. Unger, New York (Journal A. M. A., July 2, 1921) for from a half hour to several hours, varying the period of treatment according to the intensity of the sun and the sensitiveness of the skin. The legs, arms, trunk and face were in turn exposed. It is remarkable how well infants under 1 year of age react to this outdoor treatment, if carried out gradually and under careful supervision. Five infants, three between 6 and 12 months of age and two between 12 and 18 months of age were treated in this manner. Experience showed that daily treatment is not essential. In one of the cases which responded most favorably, the patient could be given the sunlight treatment only on seven days. During this period exposure was given for a total of twenty-five hours. In every instance there has been definite improvement in the rickets as evidenced by the calcification of the epiphyses noted by means of the roentgen ray. The alteration resembled that which follows the administration of cod liver oil, and, in one instance, occurred thirteen days after heliotherapy was begun. The general condition of the infants was also benefited, as were other signs of rickets, such as beading of the ribs and flabby musculature. In one case, calcification of the epiphyses of both wrists was evident, when as yet but one arm had been exposed to the sun—evidence that the action of the rays is systemic and not local.

ENCEPHALITIS LETHARGICA IN CHILDREN.*

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The disease known as lethargic encephalitis, epidemic stupor, or sleeping sickness is well defined by Sainton[1], "a toxic, infectious, epidemic syndrome, characterized clinically by the triad: lethargy, ocular palsies and a febrile state, and anatomically by more or less diffuse encephalitis, most marked in the gray matter of the midbrain." Among the infants and children of the Northwest there have been in the past year so many cases of the varied forms of this dread disease that it has seemed worthy of intensive study.

Epidemics have been reported as far back as 1718 in Tubingen, 1745 in Germany, 1800 in Lyons and 1802 in Milan. In 1889-90 it spread from Hungary thru France, Germany and Italy. The present epidemic followed a very similar course, going from Vienna in the winter of 1916-17 to France, England, and America in 1918-19, reaching America before it had really touched Italy.

The seriousness and minuteness with which these cases are being reported everywhere is helping to lift the fog which now veils our knowledge of the disease. A statistical study of the cases in Italy[2] has brought forth the interesting information that a cool damp climate favors the spread of this epidemic disease. This is born out by the fact that the cities of northern Italy and the Italian Alps have had serious epidemics, whereas Naples and sunny southern Italy have almost entirely escaped. In our own country most of the reported cases are in the north but until a thoro epidemiologic study is made, a climatic conclusion would be premature.

Bassoe[4] believes that there is a definite etiologic relationship between the disease and influenza, going so far as to say in his report of eleven cases that he believes it to be a type of cerebral influenza and that a previous attack of clinical influenza need not have been present. Comby[5], in Paris, says that it follows whooping cough, vaccination, enteritis and gas poisoning. Our cases indicate that it may or may not follow other diseases.

The symptomatology has been variously described. Its polymorphism, the instability and variability of the encephalitis symptoms include meningeal reactions with general spasms

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(Achard, Widal F.) crises of partial epilepsy (Chauffard, Netter, Koury), symptoms referable to the pyramidal tracts (Widal), the nerve sheathes (G. Etienne, L. Cassaude, J. Benech), and the cerrebellum (Denechou, Papin and Blanc[2],) Netter states that there are walking cases[3].

Most authors agree that the onset is usually gradual and may occur with or without high temperature. There is a gradual progressive listlessness, leading to somnolence and stupor and a more or less definite diplopia. The facial expression is often mask-like in appearance with immobile features and ptosis of eyelids. True paralysis is not a regular symptom but may occur principally in the ocular and facial muscles. The eyes usually remain closed, altho apparently unconscious the patient can be roused, will on command put out tongue, irregular nystagmoid movements may occur, the eyes moving in all directions in an incoordinate movement. Swallowing is generally good. The patient even when stuporous will eat solid foods without difficulty. In severe cases the urine and feces may be passed incontinently into the bed. The fever curve shows nothing constant. High temperature, especially if sudden during the course of the disease, is an unfavorable symptom. Ankle clonus and Babinski are often present. In the face of such variability one can positively affirm that there is probably no part of the cerebrospinal tract which may not be more or less definitely affected by the disease either temporarily or permanently.

The pathologic changes caused by this disease are usually found in the brain stem, the basal ganglions and the upper part of the bulb. Dense accumulations of mononuclear cells and minute hemorrhages are found in the affected parts. One of our cases had these typical changes in the heart muscle and only a general hemorrhagic condition of the brain. There is little evidence of extensive necrosis and consequent paralysis as in poleomyelitis.

In differential diagnosis tuberculous meningitis has been our most frequent stumbling block, especially in the presence of double vision. Double vision is not supposed to come until after the third week in tuberculous meningitis but I have seen it in one child seven days after it first became ill and three days before death. The autopsy settled the question. Spinal fluid shows nothing characteristic but should always be studied to aid in the elimination of tuberculosis, meningitis and poliomyelitis. Globulin is usually absent. Brill and Benson, at the University of Oregon Medical School, have recently shown that the gold chloride test of Lange gives a fairly characteristic reaction of about 0012321100, and in the presence of clinical symptoms is of considerable diagnostic value. Loewe and Strauss', of New York, inoculated rabbits with the spinal fluid and got confirmatory results in 64 per cent.

Prognosis. Statistics vary but at least 75 per cent of the cases recover. For treatment repeated withdrawal of spinal fluid is universally recommended. In our cases it gave very definite benefit. Special symptoms received standard treatment.

To obtain for you some idea of the prevalence of this disease among children the past winter, I have written to the pediatrists of the Pacific Northwest, asking a report of the number of cases they have seen. Their general and generous response has my sincerest gratitude. If one did not appreciate the polymorphism of this disease before reading those histories, he surely would after doing so. To bring this disease more tangibly into our consciousness I have tabulated the more important points mentioned in the eighteen cases received from others and also the ten cases of my own (table I).

For the sake of clearness and tangible diagnostic detail I shall describe my own cases a little more fully:

Case 780. Girl, 12 years of age, family history negative. Previous history negative except for measles 18 months before and influenza one year before, followed by complete recovery.

On Oct. 20, 1919, she had her first headache, was unable to remember her lessons and could not read from the blackboard because of blurred letters. Glasses were fitted without success. I saw her on the fourth day of the illness, at which time she had a severe diarrhea—15 to 20 stools a day, temperature 104.5°, pulse 108, respiration 22. There was a toxic rash, scarlatinal in type over body, neck and extremities. Pupils were dilated and reactions were normal and equal. Mouth was dry and full of thick stringy mucus, tongue coated and of strawberry type. Her mentality seemed clouded. The reflexes were active, Kernig and Babinski negative. There was no muscle or vertebral rigidity. Food was taken only when required. The temperature ran a typical typhoid curve for days going up to 106° but with relatively slow pulse (116). At this time she developed incontinence of feces but not of urine. Blood examination gave a white cell count of 5100, hemoglobin 78 per cent, Widal negative. Urine gave a 4 plus acetone and a positive Diazo on two examinations.

On the twenty-fourth day of illness Dr. Lawrence Selling found pupils reacting to light with no ocular or facial palsies. Reflexes nearly nor-

TABLE I

Case	Age Yrs.	Sex	Somnolence	Ptosis	Diplopia	Internal Strabismus	Facial Paralysis	
Tacoma								
1	2	M.	+			+L.		Followed smallpox. Headache severe. Monotonous voice. Disturbed vision. Unsteady gait. Reflexes negative. Recovery.
Spokane								
2	7	F.	+			+	+	Nystagmus. Well in 2 weeks.
3	6 mos.	M.	+			+		Nystagmus. Nucal rigidity. Convulsions at onset. Died 3 weeks later.
4	18 mos.	M.	+			+		Nystagmus. Nucal & vertebral rigidity. Paralysis of extremities. Complete recovery.
5	3	F.					+	Nystagmus. Spinal fluid normal. Unilat. exagg. ankle clonus. Left pupil failed to react to light. Cremasteric reflexes. Improvement.
Seattle								
6	8	F.	+		+		+	Slept. 10 days. Irritable. Choreiform movements. Pupils dilated, sluggish. Divergent strabismus. Recovery.
7	2	M	+					Irritable. External strabismus left. Recovery.
8	13 mos	F.	+					Paralysis of right arm. 3 convulsions on 2nd. day. Nystagmus. Recovery.
9	1.5	M.	+			+	+	Onset with convulsions. Temperature 103°. Spinal fluid: Globulin +. Cell count 3. Complete recovery in 1 week.
10	9	M.	+	+	+	+		Twitching of all spinal muscles for 5 weeks. Insomnia, headache and lack of concentration for 3 mo. Recovery complete in 6 mo.
11	11	M.			+	+		Monotonous voice. Insomnia. Irritable. Tires easily. Recovery.
12	3	M.	+ 1 wk.					Apparently blind. Spinal fluid normal, moderate pressure. Pupils large, sluggish. Impaired mentality. Gradual recovery.
13	9	M.	+		+	+		Headache (Nov. 1919.) Pupils large, no reaction to light. Outcome unknown.
14	2.5	F.	+			+	+L	Nucal rigidity. Spinal fluid: Glob. + Cult. 0. Mental confusion. Mentality impaired after 6 mo.
15	2.5	F.						Diarrhea for 1 week, then irritable for 3 weeks. Restless, insomnia. Fine rash over abdomen, later desquamation of hands and feet. Gradual improvement.
16	7	F.	+					Unilateral jerking of left arm and leg. Head jerking to left. Persistent vomiting. Convulsion lasting 3 hours. "Head went blind for ½ hour." Headache continuous. Slight neck rigidity. Wass. negative, choke disc. Died. Aut: Perivascular infiltration over base of brain.
Portland								
17	6	M.	+					Irritability. (Tries to fight). Pupils dilated, sluggish or no reaction, no recognition of objects. Recovery.
18	7	F.	+					Spinal fluid normal. Improvement.

mal, bilateral ankle clonus, Babinski positive on left and distinct spasticity. Patient developed pneumonia on the twentieth day and succumbed on the thirtieth day of illness.

An autopsy was performed by Dr. Benson, of the Pathology Department of the University of Oregon Medical School. Aside from the pneumonia the most interesting findings were hyperemia of the pia arachnoid; especially over the vertex hyperemic areas were noted in the cortex and medulla of cerebrum, in the upper aspect of the parietal lobe and in posterior portion of cerebellum. Pons was generally hyperemic. Microscopic sections of the areas showed engorged capillaries but none of the supposedly characteristic perivascular infiltration. The heart wall, however, showed periarterial infiltration of the vasa vasorum by lymphoid cells and fibroblasts. The adrenals were moderately hyperemic with very scanty medulla. Liver sections revealed perivacular lymphoid infiltration. In other words the heart and liver had areas which are usually found only in the mid-brain in encephalitis lethargica.

This case illustrates among other things what Bassoe, of New York, says is the first suggestive symptom of encephalitis—blurring of vision.

Case 807. Girl, 14 years of age. Previous history negative except frequent pharyngitis. May 30, 1919 became listless and sleepy and complained of headache in the train when leaving Chicago. She then slept for three days, taking her food when required to do so. She never complained of seeing double.

When seen June 5, 1919, there was bilateral ptosis, persistent stupor, negative Kernig and Babinski and marked catatonia. Spinal fluid was under slight pressure, cell count and globulin tests were negative. She gradually improved but had recurrent attacks of stupor. Her last attack was Aug. 7, 1919, which lasted three days. For nine months she has been well except for severe headache at menses. She still complains of her eyes and can not go to movies on that account.

Case. 757 Girl, 12 years of age. Family history and previous history negative, except that during the preceding August she contracted a bad "cold" without noticeable fever. She then complained of her eyes hurting and said she felt stupid but got over it and went to school again. Oct. 5 she began to be sleepy even in school.

She was referred to me Oct. 5, 1919, when she showed bilateral ptosis. Both pupils were dilated, with left pupil 1 mm. smaller than right and both reacting sluggishly to light; Kernig and Babinski were negative. Temperature 100.4°, pulse 140. Urine normal. Blood: white cells 12,000, reds 4,280,000, differential count, p. m. m. 80 per cent, eosin 1 per cent.

About 25 cc. of spinal fluid was removed under moderate pressure. Fluid was clear, cell count 5 per cmm. no globulin; culture negative; wassermann negative to both acetone insoluble antigen and cholesterinized antigen. Three hours after removal of fluid patient walked out to auto and seemed brighter than before. One week later 12 cc. more of spinal fluid was removed and the following day she wanted to go back to school. She saw two lamps on the table in place of one until after the second spinal puncture. Recovery was rapid and complete.

Case 661. Baby Girl, six weeks old, referred to me April 1, 1919, with a diagnosis of sleeping sickness. Family history was negative. The baby was the sixth child, full term, normal delivery, birth weight 8.5 pounds, and breast fed. The mother said the baby was just like her other babies until it was five weeks old, when it became very nervous, seemed frightened every time she was moved, but did not cry. There was no fever, no vomiting. Baby slept 24 hours the first day and from 18 to 21 hours daily thereafter, taking the breast only when compelled to do so.

She was seen by me on the fourth day of illness. She was limp and listless, temperature normal. There was bilateral ptosis, both eyelids drooping. Eyes were bright and opened slowly on being taken up; pupils were 1 mm. in diameter. There was no strabismus, nystagmus or noticeable facial paralysis; reflexes were normal. Spinal fluid was under pressure, no cells were present, globulin test negative, wassermann negative. After three weeks the baby began to sleep less but still never cried normally. Two months after onset it began having convulsions, three on the first day, each lasting four to six minutes. At this time the electrical responses were tested and showed cathodal closing contraction of 3 milliamperes; cathodal opening and anadol opening and closing contraction were negaitve. Calcium chloride was prescribed at this time. There was gradual improvement in the frequency of her convulsions. Her stupor lasted a total of three months, or to July 1. Her convulsions ceased Dec. 9, 1919, and reappeared again on May 7, 1920, in a light form. When seen May 16, at 15 months of age, the child neither talked nor walked and was definitely subnormal mentally.

This is the youngest case that I have seen, six weeks of age. Fourteen months observation shows the serious effect upon her mentality.

Case 976. Girl, 9 years of age. Previous history unimportant except for a mild attack of influenza in February.

She was referred to me in April. Child was taken sick three weeks before with severe pain in back of head, accompanied by somnolence whenever she sat down. At times she was very nervous and irritable. After one week choreiform movements were noted and she was put to bed. At this time she saw two flags in place of one on the wall. When seen by me on the twenty-first day of illness there was bilateral ptosis, pupils widely dilated, responding sluggishly to light, right internal strabismus; reflexes at knee were absent and Chvostek negative; temperature was normal, pulse 90 and respiration 9. No paralysis of the facial, Kernig weakly positive. Speech was normal and coherent. 25 cc. spinal fluid were removed and found clear, cell count normal, culture negative, wassermann test negative with acetone insoluble antigen and cholesterinized antigen gold chloride test weakly positive in luetic zone: 0112311000.

Dr. Lawrence Selling saw her with me the following day and found double choked disk. Patient was comatose, abdominal and knee reflexes were normal, no Babinski, no ankle clonus. She died the following day. An autopsy was refused.

Case 962. Girl, 13 years of age. Family history negative except that mother says she had the same illness when a girl and was asleep for a month. Patient was well until one month before present illness, when she had a mild attack of coryza and pharyngitis, after which she went to school. Ten days before I saw her she became hysterical, tired easily and stumbled so often that she was taken to the family physician. He diagnosed it chorea and put her to bed. She grew steadily worse and multiple arthritis and acute endocarditis developed.

I saw her in consultation April 14. She was comatose and was aroused with some difficulty; pupils were dilated and reacted slowly. Her arm movements were markedly choreiform. There was paralysis of left side of face but not of palate or ocular muscles. The heart was 3 cm. outside of left mammary line and there was marked mitral insufficiency; motion of left elbow and both knees was very painful. Temperature was 104°, pulse 140 and respiration 24. Stools and urine were passed incontinently into the bed. She died two days later.

Autopsy by Dr. Benson showed a vegetative inflammation of the mitral, tricuspid and pulmonic valves and of right endocardium; dilatation of right heart; pulmonary hyperemia and edema; congestion of the meninges and encephalitis; coronal sections of frontal region and elsewhere showed engorgement of blood vessels. Hyperemic areas in the region of the optic thalami were .5 to 1 mm. in diameter. The diagnosis, therefore, is acute encephalitis of choreiform type.

TABLE II

Case	Age Yrs.	Sex	Somnolence	Ptosis	Diplopia	Internal Strabismus	Facial Paralysis	
780	12	F.	+	+				Blurring of vision. Diarrhea. Incontinence of stools and urine. Temperature 104-106° for 10 days. Died. Autopsy: Perivascular lymphoid infiltration.
807	14	F.	+	+				Marked catatonia. Stuporous for months. Gradual recovery.
757	12	F.	+	+	+	+	+	Went to sleep in school. Dilated pupils. 2 lumbar punctures led to rapid and complete recovery.
661	6 wks.	F	+	+				Stuporous 3 months. Convulsions for 6 months. Recovery after 14 months with subnormal mentality.
976	9	F.	+	+	+		+	Flu preceded attack. Went to sleep in school. Irritability. Choreiform movements. Dilated pupils. Spinal fluid gave typical gold chloride curve. Death. No autopsy.
962	13	F.					+	Coryza 1 month before. Chorea. Rheum., endocard. Incontinence of stools and urine. Death. Autopsy: Perivascular infiltration.
572	1	F.						Irritability. Nucal rigidity. Spinal flud under pressure. Spinal fluid culture and guinea pig negative to TBc. Complete recovery.
672	9 mos.	M	+	+				Onset with pharyngitis. Irritability. Kernig +. Contracted pupils. Spinal puncture four times. Complete recovery.
1011	18 mos.	M.	+	+				Parkinsonian attitude.
1097	-	M.						Severe prolonged diarrhea. Spinal fluid under pressure. Cell count - 7. Incont. of stools and urine. Death.

TABLE III

Number of Cases	Sex		Type		Preceding Illnesses		Outcome	
28	Boys	13	Somnolent	22	Smallpox	1	Complete Recovery	13
	Girls	15	Irritable	6	Diarrhea	2	Partial Recovery	7
					Coryza	1	Deaths	6
					Pharyngitis	4		
					Influenza	1		

The next case is of the type which resembles tuberculous meningitis. Comby, of Paris, says that these cases are not usually diagnosed until a lumbar puncture is made.

Case 572. Girl baby, 12 months old. Third child of healthy Japanese parents; full term, normal delivery and breast fed to date of illness. I saw her on Feb. 25. The father had been suffering with a "cold" for a few days and his temperature had been 103°. On the third day of the father's illness the baby became ill and had fever.

I was called the next morning. She had vomited three times but was then sleeping soundly. Examination showed coryza and mild pharyngitis. Temperature 99.6°. There was a definite muscle rigidity and bowing of the back. There was no nystagmus, ptosis or stupor. Recovery was rapid. Eight days later she was very irritable, pupils were small but reacted normally to light. Fontanelle was not bulging. Kernig and Babinski negative. There was very slight muscle rigidity; child was sleepless and irritable. Lumbar puncture was done and the first fluid suprted from the needle with force. 30 cc were removed and the baby went to sleep at once. The spinal fluid was clear, cell count and globulin were negative. Gold chloride test was negative, altho mild reactions were at that time recorded as negative. Culture was negative. Guinea pig injected died in 30 days with negative findings so far as tuberculosis was concerned. Four days after the first puncture the babe was again very irritable; 12 cc. spinal fluid were withdrawn. She became quiet and was sent home and had no symptoms thereafter. When seen three months later she was healthy and happy and apparently normal. The diagnosis, therefore, was acute encephalitis.

Case 1011. This case is a boy 20 months old and may or may not be encephalitis. It is included because it demonstrated three suspicious points somnolence, ptosis and Parkinsonian position of the extremites. This last Dr. House[6] thinks of considerable diagnostic value. The case was referred to me because of somnolence of a week's duration. When I saw him he had temperature 105°, bilateral ptosis and was in deep sleep. When in bed he assumed the Parkinsonian position. He had severe pharyngitis and as this improved the other signs disappeared.

Case 1097.* Boy, 8 years old. He was well until one month before present illness, when he tired easily while at play. One week before illness he drank water from a creek which it was feared contained typhoid germs. Illness began Aug. 27, with vomiting, cramps and three or four stools per day. Temperature rose to 013.5° and remained there two days, then dropt to subnormal, 97°, and varied between that and 99° daily. On Sept. 1

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*This case occurred after the reading but before publication of this paper. It seems too valuable to omit from two viewpoints: (1) continued prevalence of the disease, (2) possible confusion with diarrheal disorders.

he had 40 stools and for three days thereafter 20 to 30 stools per day.

The acute diarrhea was the outstanding thing when seen in consultation on Sept. 3. The stools were watery, greenish, largely mucus with pus and a little blood. Smear showed many pus cells and an occasional gram negative diplococcus. Culture was negative for typhoid and dysentery. The spinal fluid was under slight pressure, cell count 7, globulin negative. Gold chloride test negative in all dilutions. The frequent stools continued and he gradually lost control of the sphincters and had incontinence of both stools and urine. Delirium began Sept. 4 and continued off and on until the end. Sept. 19 he developed double vision which lasted only two hours. He then seemed to improve, talking rationally and slept well. Sept. 27, twitchings about the mouth developed, followed by unconsciousness and death on the following day.

A partial autopsy was permitted which showed marked inflammation of the entire colon and about half of the ileum. In many places the mucous membrane was entirely denuded. No visceral evidence of tuberculosis was found. Only lethargic encephalitis could acount for the entire picture.

In Table II are shown the essential points in these cases.

A summary of these twenty-eight cases is given in Table III. It shows that they are almost equally divided between the sexes which is perhaps a a matter of chance. Instead of only one-third of the cases having lethargy, as with Comby in Paris, twenty-two of our cases were somnolent in type or 80 per cent. In only nine of these twenty-eight cases do the histories mention a preceding illness. Two-thirds of these were respiratory infections. The results show six deaths or 20 per cent mortality, and complete recovery in 13 cases or 46 per cent.

The medical world is seeking all the histories possible of encephalitis lethargica so as to advance our diagnostic and etiologic knowledge and to know whether a damp cool climate like ours affects its incidence. These twenty-eight cases illustrate the many and varied forms of the disease. The youngest case was in a baby six weeks old. Its association with practically every other acute infection compells us to keep it constantly in mind.

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MYELOENCEPHALITIS.

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Before reporting on what apparently seems the etiologic virus in this disease, I wish to mention the essential clinical facts in a number of cases.

Case 1. Male, 28 years of age. Nov. 27, 1918, woke up rather late after being called, getting out of bed rather leisurely, with a sense of unusual weakness. After getting on his feet, he fell to the floor in a faint and remained unconcious for a number of days. There was no temperature, reflexes were normal. There was no sign of any serious brain lesion demonstrable. Pulse rate about sixty. He was taken to hospital for observation. Urine was negative. Blood culture was taken and proved positive in twenty-four hours. This culture being the only positive symptom of disease thru the illness, a vaccine was made from it and he was given one small trial dose without producing any general or systemic reaction with the one exception of raising a slightly subnormal temperature to normal. Twenty-four hours after this injection he had regained complete consciousness, but still had a desire to sleep. He felt well enough the next day to leave the hospital. A complete recovery took place in this case and has been well ever since.

At this time the disease was little heard of and a diagnosis of sleeping disease was not made. The positive blood culture was considered the cause of the disease and the vaccine treatment in the present light on the disease, with the result that followed its use in this one case, was considered quite singular. The culture was a diplococcus and is unlike the virus in the brain and spinal cords of the fatal cases. This patient had had the influenzal infection about eight months previous to this illness.

Case 2. Fourten year old boy, with an excellent previous history. In the later part of Sept. 1919, and extending into the first week of October, he had an atypical attack of influenza, from which he never seemed to recover. Occurring during the epidemic, one might presume this diagnosis correct, but the subsequent facts do not justify it. There was no pulmonary involvement nor any abdominal disturbance that might suggest an abdominal type of influenza. Toward the end of September he complained of dizziness, headache and subjective eye symptoms, which developed into a distinct photophobia and eventually a diplopia. He suffered constantly with a sense of chilliness, but had no distinct chills. The diplopia was closely followed by a right ptosis, without facial paralysis. Dec. 3 he had an atypical convulsion.

I saw him for the first time Dec. 6. He was in bed, complaining about being chilly, was covered with bed clothes, including his head. He seemed

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*Read before Pierce County Medical Society, Tacoma, Wash., Mar. 8, 1921.

hazy mentally and was in distress. Replies to questions were unsatisfactory. A general examination showed vesical distention above the navel. Catherization had to be continued thruout after this. Temperature and pulse rate 100. Heart and lungs negative. There was a complete paralysis of right third cranial nerve. Abdominal skin reflexes exaggerated. Sharp and quick tache. He could move his limbs freely, altho slight spasticity was present. Knee jerk exaggerated in right, but absent in left leg. Babinski slight in right, absent in left foot. Ankle clonus absent. There was a slight rigidity in neck. Kernig sign absent.

Living in the country he was removed to hospital. Blood count showed a 14,000 white cell count, blood cultures by routine negative. Urine negative. Two spinal punctures showed 10 and 40 cell counts. Wassermann spinal fluid and blood negative. Condition in hospital progressively grew worse, dying on the fifth day of admission, the temperature reaching over 105 and pulse rate above 160. The last twenty-four hours presented a typical picture of the Landry type of acute ascending paralysis, the mask expression evidencing a flaccid paralysis of all facial muscles.

This case was the first posted and only a cord necropsy was allowed. From a section of this cord were findings made, which have been corroborated in all subsequent necropsies. Objectively the cord seemed free from all evidences of disease with the one exception of a slight injection of the small vessels. There was no exudate and the spinal fluid was clear.

Case 3. Case of Dr. Evan Hyslin. Male about 30 years of age. Shipyard worker. Had worked for forty-eight hours without sleep, just previous to onset of disease.

March 8, 1919, he complained of weakness in his feet. Lethargy showed early after this without any occular signs. The weakness of feet rapidly extended upward, giving the case a typical picture of the acute ascending type of paralysis. On the sixth day of illness he had a complete flaccid paralysis of the lower extremities, with no radical changes in the sensory system. He could readily differentiate between pin pricks, heat and cold. There was a partial paralysis of the upper extremities, manifested by an inability to raise the arms above the level of the shoulders. Forty-eight hours after this the vital centers were involved and a complete flaccid paralysis of the face muscles was evident by the mask expression of he face. Swallowing at this time was also interfered with.

He died from vital center involvement, which was preceded by an edema of the lungs and an uncountable pulse, consciousness being retained until a few minutes before death. At no time was there any pain that he complained of.

Postmortem in this case was done by Dr. G. A. Wislecinus. The brain showed involvement of the entire cranial lining. There were present many areas of organized exudate but no pus. The brain was adherent to the membranes and dura, especially the vertex. The sulci were filled with this organized fibrin. The brain was quite soft in its entirety. Cross section showed no gross lesion. The small vessels were rather prominent. The spinal cord showed nothing abnormal but a slight injection of the vessels. Spinal fluid apparently clear.

Case 4. Rancher, 45 years of age. May 14, 1920. Complains of an excessive desire to lie around. Has been forcing himself to work in spite of his lethargy. Complains of pains below each knee and says his legs are weak. His wife informs me that she has to watch him while he is at work about the ranch. Frequently finds him asleep either in the field or about the chicken houses. Mentally is perfectly clear, but must force his mind, he says. Having been a very active man his present state was causing no little amount of worry. Having known him for a couple of years, this illness wrought a great change in the muscles of his arms. His musculature was reduced from a hard muscled physique to a very flabby one.

Blood studies were made and from these findings a diagnosis of encephalitis was made. He was given daily 20 grains of urotropin for nine days, after which he said he was beginning to feel like himself. A blood test at this time revealed the same virus still present. The serum of his blood was separated from the clot and, after incubating this for five days and injecting it intraperitoneally into a mouse, it died on the twelvth day, with a spastic paralysis of all legs.

Inability to grow this virus on artificial media but growing in the patient's own serum suggested the use of an autogenous serum. Accordingly I got more blood, about 20 cc. After twenty-four hours the serum was withdrawn. This was placed in the incubator for seventy-two hours. An examination of this serum showed the virus in abundance. Three cc. of this I injected into the arm muscles, after inactivating for fifteen minutes. This injection I gave him on June 1, three days after the last intravenous dose of urotropin.

June 19 he returned, saying he thought he was "Jake." Blood taken at this time and studied failed to show the virus and has been absent from blood taken on June 26. Being somewhat anemic I gave him an iron mixture. Since then he has been attending to his work, his wife reporting for him.

Case 5. Young man of 30 years. First consulted me on Aug. 17, 1920. Says he was supposedly cured a year ago, after sleeping for seven weeks.

Present condition. He looks very pale, complains of soreness in his limbs, is very apathetic and is not able to resume work. The anemia apparent is not real. Hemoglobin is 94 per cent Sahli. White cell count 9000. Wassermann negative.

This case is a chronic type of the disease. While he apparently made a recovery from the acute stage, he never has been free from the infection. Until the disease is fully understood, a considerable number of the so-called recoveries will be relapsing. From Aug. 20 to Sept. 24 this patient took ten grains of urotropin three times daily with no good results. For five days he was given 20 grains intravenously, followed by five daily doses of 30 grains intravenously. Insofar as any effect was concerned he might as well have had a couple of cc. of sterile water or saline. There has never been any kind of a reaction following many intravenous injection of unrotropin that I have given in these cases. I have given as high as forty grains with no reactions.

Oct. 13, the blood apparently was free from the virus. Incubating a specimen of blood for this virus after the administration of urotropin has always been negative. A few days must elapse to prove up on this. Apparently there is enough urotropin in the serum which breaks up in the incubated tube and prevents the growth. This is probably the explanation for getting a negative tube with serum taken soon after a course of the urotropin.

Nov. 1 a blood test again showed the virus. Nov. 6 and 9 he was given an intravenous injection of neoarsphenemin. From these he got no effect on the blood insofar as the virus was concerned, so that on Nov. 17 the blood findings still persisted. From this date to the first of March, 1921, he is practically in the same condition as when first seen in August of last year, a chronic myeloencephalitic.

One may judge from the foregoing that we are dealing with a very peculiar disease. The most singular characteristic of it is the dissimilarity of symptoms presented in any series of cases, the most common and striking symptom being the lethargy of varying degrees. This was present in all of the cases seen. Considering the findings insofar as the distribution of the virus is concerned, the disease must be considered as an involvement of both the parenchyma and interstitial tissues of the cerebrospinal system. I doubt not but there is an invasion of the nerve trunks. The finding of the virus in the blood in these cases naturally raises the question as applied to epidemic cerebrospinal meningitis, hydrophobia and tetanus: viz, are not all of these a septicemia or bacteremia, producing no pathology in other parts, but having a selective action on nervous structures, the pathologic changes being manifested only in these parts.

It is axiomatic to state that in the above named diseases and including tuberculous meningitis and syphilis, the virus of these is carried into the brain substance and linings by the blood stream. In this disease, which follows the rule of all brain infections, the virus is demonstrated in the blood. It naturally follows that it must be demonstrated in the brain, spinal cord and cerebrospinal fluids.

In all of the postmortems held the virus has been demonstrated in every case and in every specimen of either blood, brain, spinal cord or spinal fluid. In Dr. Heaton's case in a puncture of the spinal cord with strong suction to get put a drop of the cord serum, the virus could be demonstrated on a vital slide. This procedure is safe, causing a momentary lightning shock to the lower extremities without pain, just when the needle enters the cord. After entering the cord, a strong suction is maintained for a few seconds, then released on withdrawing the needle. The first drop from this on a slide, covered and examined with a proper light and amplification, will show the virus as a very small active micrococcus.

In all of the twenty-eight cases observed locally this virus has been observed, with the exception of two very transient cases. The blood has been taken from veins under a rigid technic. The blood is promptly transferred to sterile tubes, the ends of which have been drawn. After transferring the blood, the ends are hermetically sealed in a gas flame to absolutely prevent contamination. After incubating for seventy-two hours or more, a vital slide made from the serum shows the virus more readily than a fresh blood slide. Seemingly the multiplication of this virus reaches a certain degree, after which further growth ceases in the same tube of blood. Transplantation has failed to produce a luxurient growth on many culture media, aerobically and anaerobically. On the ordinary media, while no growth is visible, the vital slide shows the virus as still present after many days, if tube is sealed to prevent evaporation and drying. In only one case was a growth obtained of what appeared as the same virus, but considering the method there is room for doubt. In case 2 a section of the cord was obtained postmortem aseptically. The culture media used was a fresh calf brain. This was sectioned technically; a streak inoculation produced a growth in thirty-six hours along the line of inoculation. A vital slide on this was identical in appearance with the virus as seen in the fresh specimen, a very small active micrococcus.

In six cases there were positive cultures upon ordinary media. These showed no parallel characteristics. Each culture had peculiarities of its own. Morphologically they were classified as cocci and diphtheroids. In the blood tubes these types were readily differentiated from the small micrococcus present in practically every encephalitis case.

Whether these concomitant bacteria have a bearing upon the disease, it is difficult to determine. Three of the six cases have died. One is insane and committed to the insane ward at Steilacoom. The other two are not able to attend to normal activities after an interval of more than one year. These positive cultures have not been obtained in all of the fatal cases. These concomitant infections confirm the opinion of Cruchet, of Paris, that there is more than one factor present in this disease. I shall not report the details of these cultural tests for lack of time and space. The cultural tests of spinal fluid are parallel with the findings in the blood.

The direct examination of the brain and spinal cord consists in the making of a vital slide and direct examination, preferably without any staining. If a stain is used, a one to four mixture of Wright's blood stain and water is employed, with an equal part of the stain and macerated brain or cord substance are mixed before covering as a vital slide. Gentian violet gives the best results on a fixed slide. Fixing reduces the small size of the virus and one is inclined to believe it is possibly stain granules.

The symptomotology of the disease I have avoided. Details would cover a book. The scope of the reported symptoms cover any signs that an irritative or paralytic lesion might produce in any part of the cerebrospinal system.

Animal experiments consisted of intraperitoneal injections of incubated blood serum in white mice. From case 4, the rancher who recovered completely, the mouse died on the twelfth day with spastic paralysis of all four legs, micrococci being observed in the brain postmortem with no evident pathology in the abdominal cavity. In case 5 the same experiment produced a complete hemiplegia after one week, the mouse completely recovering in twenty-four hours. After recovery from this paralysis, and waiting for a week for further observations an examination of the brain substance revealed the same micrococcus present as in the first mouse. Likewise there was no evident lesion in the abdominal cavity. Heart blood from both mice showed the virus present in the circulation.

From observation of the medicinal treatment of local cases, results obtained by either urotropin or potassium iodide are such that no positive effects have been obtained attributable to their use. Cases without any medication whatsoever have shown equal results, recoveries and deaths taking place under intensive treatment by both drugs.

Modified or inactivated autogenous serum as was used in case 4 apparently justifies further use, with the hope of getting sufficient antitoxin or antibody content to neutralize the toxic elements and possibly destroy the micrococcus. This autogenous serum after inactivation rules out the proposition of considering it in the light of a specific serum. In its true light one must consider it as an antigen. Being made from the patient's own blood it is probably sensitized, containing some antibodies. What changes take place in a probable toxin content in this incubated autogenous serum after inactivation is entirely speculative.

To say the least, this treatment is parallel to foreign protein therapy with a semblance of specificity. Recovery from any infection revolves about the question of an acquired immunity. This immunity takes place in every recoverable disease, before health is restored. The result obtained in case 4 by this treatment with the incubated and inactivated autogenous serum justifies a hope of cure and appeals as a most rational mode of treatment, particularly from an immunologic view point.

In the six cases, in which positive cultures were obtained of secondary or associated infection of the blood stream, each one of apparently dissimilar characteristics and these evidently having a bearing upon the prognosis, the antigen for each case would obviously be different. Duplicity of infection abrogates the hope of a specific serum.

TREATMENT OF INFLUENZA AND ITS COMPLICATIONS.*

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COEUR D'ALENE, IDA.

Primarily uncomplicated influenza is not a specially serious disease, and yet it is potentially the most serious epidemic illness that we have in our northern latitudes. It is only in the presence of some of its most formidable complications that we have its seriousness and its potencies for far-reaching evil effects thrust brusquely upon us.

I presume that all of us had abundant opportunity during the epidemics of '18, '19, and '20 to try out our pet theories of treatment in this disease. Nothing is more common than to hear from the laity that Dr. So and So has had splendid results in a large number of cases, from following a certain line of treatment, has never lost a case, etc.

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But on running it down you find that either the rumor is an untruth, or that the newspapers and Dame Gossip have been kinder with him than with some of the rest of us.

I am inclined to believe that none of us have anything to boast about in our handling of this disease. And yet we must have learned something from our experiences with it in the past two years and it is this something which I am going to endeavor to present to you in this paper. I do not claim anything phenomenal or record-breaking in my results, or anything revolutionary in treatment. In fact, most of my experience has been largely negative as far as anything new added to the treatment goes. Nevertheless, we sometimes gain something from a restatement of old truths.

It is a good thing to have a good, concrete mental picture of the pathology of any given disease in our minds before formulating a plan of treatment, and we have to consider the following pathologic picture in this disease at the outset. A self-limited, infectious, contagious disease, perhaps always respiratory in origin, with an organism acting that is not yet clearly demonstrated, but which manifests a decided tendency to associate itself symbiotically with the suppurative, pneumococcic and hemolytic bacteria, producing local inflammatory changes in the respiratory, aural and gastro-intestinal mucous membranes, and which produces a rapid, and oft-times terrific general toxemia, with frequent production of pus in almost any or every part of the body, and which produces a tremendous depression of the vital forces which is recovered from very gradually, and which provides a soil and agency for the genesis of many sequelae which are of more importance than the initial illness. Hence, the therapeusis of this disease must be directed against a rapidly developing asthenia with a lowered resistance of all the normal antitoxic forces of the body.

The treatment should, therefore, first of all, be directed toward inhibiting the production or neutralizing the effects of the toxins of the disease as far as possible, and toward sweeping out of the body, as rapidly as it can be done, such as are not inhibited or neutralized, that the body may be spared from the depression which is the main factor of this disease. Next, all of the tonic and reconstructive forces of our aramentarium should be used to repair the damage already done and to restore the patient to health as quickly as possible. There is perhaps no other disease which we are called upon to treat, where it is so important to get a proper perspective, and by that I mean we must keep the whole clinical picture in mind with its ultimate outcome, and not be stampeded by such comparatively unimportant incidents as fever and pain, which are very rarely in themselves a real danger in this affection. Any system of treatment of influenza that is not based upon these principles does harm in my judgment.

The first factor we will consider is the inhibition of the production or the neutralization of the toxins of the disease. Unfortunately we have no antitoxin as yet, or at least none has been universally accepted. Reports are conflicting on the efficacy of serum treatment, and my own results have not been very encouraging, tho I have only used them in a small way. At present we must depend upon general measures, such as diet, fresh air, sunshine and perhaps calomel in small dosage, as recommended by Sajous. It may be that we shall have something later to act as a direct bactericide or antitoxin in ridding the body of this infection, but at present in a general way I believe I state the position in this respect correctly.

It is more by the indirect method of ridding the body of accumulated toxins that we must strive for results at present. With this aim in view the patient should be flooded with water, fruit juices, or mineral waters by the mouth to encourage elimination by the skin and kidneys, calomel or some similar agency to encourage elimination by the bowel, normal saline solution by the bowel, subcutaneously or intravenously in graver cases, to dilute toxins and help the system eliminate them. The patient should be kept reasonably warm to encourage skin elimination.

It is important that the patient be put to bed at the onset of the disease, and that he be kept there until convalescence is well established. I think that you will all agree with me that this is all-important, and that experience has amply demonstrated it is absolutely the most important single thing in the treatment, and that numberless lives have been needlessly lost by victims of the disease not taking to their beds early, and not remaining there until perfectly recovered. If the patient be up and around, the excretory system is cluttered up by unnecessary by-products of muscle-waste, resulting from exertion, which interfere with the rapid elimination of the influenzal toxins. An unnecessary strain is thrown upon an organism already debilitated by the asthenia of this disease, which may result in a slower convalescence, with the production of complications and sequelae due directly to the lessened resistance to a more unfavorable environment than is found in complete rest in bed. Experience has borne out the truth of this so often that even the laity do not need to be told of the dangers such a course entails.

The above forms really the major part of the treatment and should not be neglected in any case.

I am absolutely convinced that the average drug treatment does more harm than good in a general way, tho it is sometimes necessary for the relief of troublesome symptoms. I am opposed to the use of antipyretics in influenza by routine, as their use does not shorten or limit the disease in any way, and may do harm by increasing depression. I think that better results are attained by hydrotherapeutic methods, giving water, fruit juices or salt solution, as already outlined, with cold enemas for the reduction of fever and the allaying of troublesome nervous symptoms. These methods, with tepid sponging, will give as good results as an antipyretic in the relief of fever, without disturbing the stomach, or weakening the heart as these agents sometimes do, and with the added advantage of being a tonic to the nervous system. Fever rarely lasts more than three days, and in itself is not worthy of much attention, except as an index of the general condition of the patient.

Pain may require one or more doses of some sedative, but the less used the better. The pain from severe and uncontrollable coughing will be much better handled and relieved by hot mustard fomentations, and the headache can usually be relieved by cold applications or the ice-bag. Sleeplessness is better controlled by hydrotherapeutic measures than by hypnotics, but the latter are sometimes necessary. In the milder cases care should be used not to overtreat the patient.

The patient should be placed, if possible, in a large, sunny, well ventilated room, which should be kept at a temperature of about 65° with little or no variation in temperature. My observation has led me to conclude that too low a temperature of the room is a factor in the development of pneumonia and other troublesome complications. The source of the light should not be so that it shines directly in the patient's eyes.

The diet should be liquid and sparing during the course of the fever, light, supportive and given in small quantities every two hours during convalescence. Members of the family should be kept out of the room as far as possible. I am in favor of the placard system of quarantine in a general way, tho I am not convinced that it does much good in limiting the spread of the disease.

Pneumonia is perhaps the most frequent severe complication met with. Even in this condition, in my experience, patients get along better without routine drug treatment. My main reliance is still on hydrotherapy, tho I sometimes use symptomatic treatment with drugs. I believe that the so-called heart stimulants do not accomplish much and it is about as well to get along without them. If the principles of treatment already given have not conserved the patient's resistance so that he can go forward to a normal crisis and convalescence, I am not persuaded that we have anything in our armamentarium of drugs that will nullify the apparent decrees of Providence.

Pleurisy, empyema, suppurative otitis media, abscess of the lung, etc., should all be treated along well established lines, bearing in mind the special factor of the asthenia and lowered resistance of the patient in this disease.

The patient should remain in bed until the pulse is approximately 80, and should then get around cautiously, graduating his exercise as to its effect on his pulse rate. He should not get out of bed as long as he has a troublesome cough; in fact, I regard rest in bed as the most important treatment of the severe coughing that so frequently complicates this disease. His diet should increase in quantity and variation as the condition of his tongue indicates his ability to take care of the increase, and he should not return to work until body weight approximates normal.

In conclusion, I deprecate the attitude of the newspapers toward the late epidemics of influenza. I think their columns would be much better filled by other material than the calamity howling, in which so many of them indulged, and which was certainly not calculated to ease the mind of the public, never too well balanced, and which bred a fear of the disease which may perhaps have been somewhat of a factor in its spread. This certainly was a factor in militating against the operation of brotherliness in the relief of many of the hardships undergone by the sick, dying and their relatives in the late epidemics, and which certainly kept aloof many naturally tender-hearted people.

AUDITORY HALLUCINATIONS IN RELATION TO DISEASE OF THE MIDDLE EAR. REPORT OF A CASE WITH MARKED AUDITORY HALLUCINATIONS OF EIGHT YEARS DURATION, WITHOUT OTHER EVIDENCE OF MENTAL DISEASE.

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Hallucinations may be defined as false sensations or sensations arising in the cortex without any external corresponding object. To be strictly accurate we must expect memory images, which have no external object but originate by way of the association paths. Hallucinations, moreover, must be differentiated from illusions, the latter being the result of a faulty or imperfect perception of an external object.

While hallucinations may occur in the sphere of any of the senses, those of audition are the most common, with visual hallucinations next in frequency. As to the nature of hallucinations, several theories have been advanced. The psychic, holding them to be purely intellectual; the physical, claiming a purely organic origin and the mixed or psychosensorial, conceding both these elements in their production. The latter or so-called theory of Tamburini, that hallucinations are the result of a disorder of the psychosensory projection center, is the one generally accepted. That the respective sensory area of the cortex is the organic foundation of hallucinations has been well upheld by pathologic evidence. Should this cortical center be totally destroyed there could, of course, be no hallucinations, but it may diseased or even almost obliterated and still give rise to hallucinations as long as its activity or function has not been completely abolished.

It is when we approach the question of the relation of hallucinations to disease outside of the cortex or in the peripheral elements of the sense organs that the interest deepens and the questions multiply. If we accept the idea that stimulation of the peripheral nerve elements may give rise to hallucinations, we should remember, as Bianchi points out, that artificial irritation of nerve endings, such as the acoustic nerve terminals in the organ of Corti or the rods and cones of the retina, produces not definite words or actual images of objects, persons or places, but merely elementary phenomena, as hissing or blowing sounds, flashes of light or bright spots.

In disease of the auditory sense organ tinnitus or subjective noises are extremely common and have been the subject of much discussion and theory. In fact, the otologist seems to be almost as fond of theories and arguments as the neurologist but, be that as it may, the exact cause of tinnitus is still obscure, according to Ballenger who, however, finds refuge behind the theory of Shambaugh. This, in brief, is that anything which causes a change in the tension of the intralabyrinthine fluid, such as pressure applied to the conducting apparatus, pushing the foot plate of the stapes into the oval window, will cause tinnitus. The direct result of the increased tension of the intralabyrinthine fluid is a disturbance of the membrana tectoria. Hairs from the hair cells normally penetrate into the lower surface of this membrane, and any disturbance of the membrane changes the normal relations existing between membrane and hair cells thus causing a stimulation of the cells.

Auditory hallucinations are symptoms common in various forms of mental disease, but may in rare instances exist without actual insanity, being present, as in the following case. From the neurologic dispensary of the Jefferson Hospital, reported thru the courtesy of Dr. F. X. Dercum.

J. H., white male, age 56 years, single, machinist He complains of hearing voices almost constantly, which curse him, calling him all sorts of vile names and commanding him to do certain things. If he should be standing by an open window they often tell him to throw himself out. While being examined he was asked if he heard the voices. He listened and answered, "Yes." "What do they say to you?" "Get up, you . . . . !"

He stated he had no notion that the voices actually came from people, saying, "I know it is all from myself." He does not believe that any one is responsible for the voices or trying to harm him in any way, nor does he ever react to his hallucinations in the sense of doing any of the things he is commanded to do.

The voices are said to be "not so loud" when he keeps his mind occupied, but are very distressing at night. He has had noises in his ears for twenty years, associated with gradual failure of hearing; the right ear being first affected. After a time the noises sounded like a lot of voices jumbled up together, but did not take the form of words. He relates the appearance of definite voices and words to an attack of delirium tremens eight years ago. Altho he has not taken any alcohol since that time, the voices have persisted and have been slowly growing worse (louder).

Beside being a heavy user of alcohol prior to the time just mentioned, he contracted Neisserian infection in France at the age of 18, while in the

U. S. Navy. This was followed by a stricture which he claims was most as bad as the voices. It was soon after this that he first noticed difficulty with his hearing. In November, 1903, he added a chancre to his list of troubles and later developed some sort of eye disturbance, for which he went to the Wills Eye Hospital, where he received mercurial inunctions. Two years ago he was given a dose of 606 at the Jefferson Hospital because of a throat condition, after which he felt much better, tho none of the medication had any effect on his hallucinations.

When asked if he ever saw vision or faces, he replied, "Not since I had the D. T.'s. I saw everything then." He has no delusions and shows no quantitative mental loss. In fact, despite his defect in hearing, he is alert and shows no emotional disturbance. Attention, memory, judgment, orientation and lucidity are all normal. While unable to work about machinery in a factory as he formerly did, he works at times about the place of his old employer. He is neat and cleanly in appearance and careful about his clothing.

Upon examination, gait and station were normal; the pupils equal and prompt in reaction to light, accomodation and convergence. There was no external ophthalmoplegia nor nystagmus. He had no hypermetry nor adiadokokinesia. The tendon reflexes were normal and there was no disturbance of sensation to touch, pain and temperature. The stereognostic sense was normal. He had no tremor of tongue, lips or fingers and no speech defect.

Dr. Arthur J. Wagers reported the following ear conditions: Inspection: Right ear, Drum head slightly retracted, freely movable, cone of light not visible. Left ear. Drum head slightly retracted, Sharpnel's membrane and the membrane over the maleus hyperemic but not bulging. Membrane and ossicles freely movable. A considerable amount of dry scaly wax in the external auditory canal of both sides.

Hearing Test: Right ear. Unable to distinguish sound of vibrating fork from tinnitus. Fork "C" 64 not heard by air conduction. Rinne: AC (?) BC 18" (fork "C" 512). Galton whistle not heard. Left ear. "C" fork (512) heard at distance of one-half inch. "C" 64, not heard. Galton whistle not heard. Rinne: 30" AC 10", BC 40". Weber to left ear..

Eustachian tubes: Right not patulous, left slightly so. Examination by means of nasopharyngoscope shows mouths of both tubes somewhat constricted, with thickened porterior lips and bands of adhesion in the fossae of Rosenmuller.

Patient has never had any aural discharge or suffered any pain.

From this examination we find both ears to be affected by a chronic non-suppurative process which has resulted in the complete loss of hearing for both high and low tones.

Bone conduction for the right ear is very poor. Compared with bone conduction for the left ear, we find the efficiency of the cochlear division of the right auditory nerve very much impaired. The deafness of the right ear is found to be due to the combined effect of disease on the nerve, the middle ear or conduction apparatus, and the closure of the elustachian tube of that side. The impairment of hearing in the left ear appears to be due almost entirely to middle ear disease.

Ophthalmologic Examination by Dr. J. C. Knipe: The vision in each eye is 20/40. Pupils 4½ mm. Irides react to light and convergence. Tension normal. Ocular movements unimpaired.

Ophthalmoscopic examination: O. D. Slight vitreous haze. Disc oval, cup filled in, broad scleral ring, vessels full and tortuous, some pigment disturbance in lower nasal quadrant. O. S. Same as O. D.

A recent Wassermann of the blood was negative.

In this case paresis can readily be excluded by the absence of physical signs, lack of mental deterioration and the long duration of the hallucinations.

Alcoholic insanity can be excluded by the absence of delusions and dementia, normal orientation and the continuation of the hallucinations for eight years after he had stopped drinking.

Beginning paranoia was suggested as a possibility by one who saw the patient several years ago, but the long duration without any attempt to form delusions would now exclude that disease.

The association of the noises with diminished hearing at the onset would indicate disease of the middle ear as the primary etiologic factor. It will here be recalled that the noises commenced long before he contracted syphilis and, as he was a sailor in the U. S. Navy, it is most unlikely that he could have taken sufficient alcohol up to that time to have any effect. Moreover, alcohol would not cause impaired hearing and noises, but, as occurred later, definite voices. That alcohol was the exciting factor in producing the voices there would seem to be no doubt, and that both alcohol and syphilis have acted upon the cortex to cause disturbance without abolition of function would seem equally probable.

The interest of the case lies in the long continuance of such marked auditory hallucinations with the absence of any recognized form of insanity, also in the relation of the hallucinations to disease of the conductive apparatus.

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EDITORIAL

PARATHYROID HYPOFUNCTION AND ECLAMPSIA.

In the May issue of *Endocrinology*, Aldo C. Massaglia, of Northwestern University Medical School, reviews some experimental work which he has been doing upon pregnant animals in attempting to determine the role which the parathyroid glands play in normal individuals, and the antitoxic action which these glands have during pregnancy. While the actual number of animals used in his experiments was not large, still he felt that his results were sufficiently clear cut to warrant his drawing some definite conclusions as to the importance of the parathyroids in their relation to the eclamptic state as follows:

(1). The parathyroid glands appear to have the function of neutralizing or breaking down into waste products of simpler chemical composition the toxic substances resulting from pregancy an the puerperium.

(2). An intoxication from a parathyroid hypofunction injures, more or less, the kidneys, liver and nervous system.

(3). Parathyroid hypofunction in pregnancy or puerperium is a pathogenic factor (altho not the only one) in eclampsia.

(4). It is probable that eclampsia is most commonly caused by parathyroid hypofunction; therefore, it is always wise to give a parathyroid preparation in the treatment of eclampsia.

If future experimental and clinical work corroborates the work of Massaglia and gives us a specific treatment for eclampsia, the field of endocrinology will certainly have come into its own, and it is to be hoped that more reports regarding the use of parathyroid theapy in eclampsia and the preeclamptic state will be forthcoming in the near future.

THE BOSTON A. M. A. MEETING.

The seventy-second annual meeting of the American Medical Association was held in Boston, June 7-10. This great educational center is an admirable city in which to hold such a meeting. Attending the clinics of the men who are authorities in the various specialties, together with the visiting of the places in Boston that are of medical historic note, added very materially to the pleasure and profit of the session. Few cities have so many halls and hotels fitted for caring for such a meeting in as close proximity as are found in this city. The general headquarters were in the Charitable Mechanics Association, an organization founded in 1795 with Paul Revere as its first president. In this building were also to be found the scientific and commercial exhibits, as well as the meeting places for six of the section.

The scientific work of the Association was divided into sixteen sections. With the exception of that on anesthesia, each section held one session on each of the three days given to papers. The sessions were arranged partly in the forenoon and partly in the afternoon. Great credit is due the ones who arranged the schedule, for in so far as it was possible kindred sections did not conflict. The general practitioners, who composed the great body of the medical profession, were evidently thought of, for the section on medicine was placed in the forenoon and that on surgery in the afternoon. In the various sections three hundred and fifteen papers were scheduled. The character of the papers was on the whole very good. Most of them were based upon original work, either experimental or clinical or both. A great number were illustrated by lantern slides.

The symposium on basal metabolism in clinical medicine, held jointly by the sections on practice of medicine, pharmacology, therapeutics, pathology and physiology, received the most favorable comment and had the largest attendance of any of the scientific sessions. It is exceedingly rare to see so many men, pioneers in the work, together in a single meeting. Papers in the symposium were presented by Lusk, Benedict, DuBois, Means, Plummer and Boothby. Taking part in the discussion were Crile, C. H. Mayo, Marine, Aub and others whose names are known because of work they have done in this field.

The scientific exhibit deserves special mention. From year to year it is increasing in its scope and efficiency. As a part of the exhibit a hall with a moving picture machine was provided. The commercial exhibit was of real educational value and well worth the time required to inspect the exhibits of the various companies.

The House of Delegates had a strenuous time, as there was much important business requiring their attention. From the viewpoint of the professions as a whole, the questions of social medicine and health insurance were probably the most important problems discussed. It is rather unfortunate that in our state and national association it is necessary to rush business thru the legislative bodies in so short a time. Important questions like these should be studied by commissions or bureaus having plenty of time, so that exhaustive studies may be made. The attendance was better than was expected, the enrollment reaching five thousand five hundred. Nearly every portion of the United States was represented. The entertainment furnished was ample. The president's reception was held in the large ball room of the Mechanics Hall. Numerous trips were arranged for. On the Saturday following the meeting a trip to Plymouth by boat was made.

This meeting of the American Medical Association was one of the most profitable and successful in its history. Next year the meeting will be held in St. Louis.

A SUPERIOR TRISTATE MEETING.

The recent meeting in Portland was in many respects the best and most noteworthy in the history of tristate gatherings. The attendance was the largest for any meeting held in the Pacific Northwest, the registration exceeding six hundred. Besides members from all the Oregon cities, there were large delegations from the cities and towns of Washington, as well as a goodly number from adjacent states. The program committee displayed excellent judgment and was unusually successful in securing speakers of merit, whose addresses equaled those of any medical meeting that could be found in any part of the country. The attendance at every session was notable for its size up to the last address of the meeting. Without mentioning all in detail, the demonstration of the possibilities of local anesthesia was presented in a most convincing manner by Dr. Farr. One was almost persuaded that major operations of the future would be done under local anesthesia. The work on hare-lip, as described by Dr. Brown, was most fascinating. It is evident that every one suffering from this congenital deformity should be restored to his normal condition, if the requisite skill be available. Dr. Blair is a wizzard in repairing defects and deformities of the face. The results almost come among the impossible. The work of Dr. Strauss elicited an interesting discussion as to whether duodenal and gastric ulcers should or should not be excised. He presented his views in favor of such treatment in a very convincing manner. The address by Drs. Braasch, Lewis and Hinman were of the same high order and of a most instructive character. It should also be mentioned that the papers by our Western men compared most favorably with those from the East.

As usual, the Portland profession excelled in its most hospitable entertainment. The banquet and ball at the Waverly Club was carried out on a magnificent scale, the attendance being almost overwhelming. Under the skillful guidance of the silver-tongued and silver-haired Dr. Williamson, wit and humor were abstracted in large amounts from the speakers East and West. It was a delightful evening, long to be remembered. While the attendance for the Columbia Highway drive and barbecue at the Automobile Club grounds was somewhat less, this was generally considered a fitting culmination for the festivities of the occasion. As a gastromomic event it will not be forgotten by those fortunate enough to be present. The success of the meeting was greatly enhanced by holding all sessions in the hotel which housed the visitors. Such arrangements are now days essential for the most effective and complete medical gathering of this kind.

GRADUATE MEDICAL LECTURES.

The University of Washington Graduate Medical Lectures will be presented in Seattle for its fifth year during the week July 18-22. The lecturers are Dr. C. F. Hoover, Professor of Medicine at Western Reserve University, who will present the subject of the scaleni, the intercostal muscles and the diaphram and questions of respiration and the heart; Dr. Carl A. Hamann, Professor of Clinical Surgery, Western Reserve University, who will consider surgical conditions dealing with tumors and abdominal condition; Dr. Harris P. Mosher, Laryngologist of Massachusetts General Hospital, who will discuss the anatomy and diseases of the nose and throat. These lectures in the past have proved very instructive and profitable. There is every indication that this year will be no exception to the rule. Several social functions are prepared for those attending the course of lectures. Mornings during the week will be devoted to the lectures which will be at the University of Washington. The course is open to any physician desiring to attend the lectures.

FALL MEDICAL MEETINGS.

The Washington State Medical Association will hold its annual meeting in Seattle, September 1-2. The program of papers has been only partially prepared at this time. The readers will be confined to local talent. Especial attention will be paid to matters of medical economics, public health, hospital standarization and similar topics. These are all live subjects of the present day which the profession of each state must meet and assimilate in some manner, to the best advantage of themselves and the general public. Details of the program relative to these and other topics wil be published in our next issue. It is hoped that the physicians of Washington will set aside the above dates for attendance at this meeting, which it is expected will prove profitable and instructive.

The annual meeting of the Idaho Association will be held at Twin Falls, October 6-7. Detailed information concerning this meeting will be published later.

A NEW JOURNAL.

The latest venture in medical journals is the *International Journal of Gastroenterology*, the first issue of which is published this month, edited by Dr. A. L. Soresi, of New York. The appearance of the publication is somewhat unique in being printed on India paper, the pages being yellow in color and the cover dark brown. It is stated this selection is made because it is restful to the eyes of the reader. The editor states it is his aim to publish a journal which will be useful to the specialist as well as the general practitioner. A feature is made of commentaries on published papers. Before their appearance each is sent to well qualified men for the expression of their opinion on the value of the paper in question. These views appear in connection with the paper. It is proposed to have at least three of these commentaries attached to each article.

This first issue contains, besides two papers from the editor, articles by Carey, of Marquette University; Smithies, of University of Illinois; Radasch, of Jefferson; Burge, of University of Ill.; Gordon, of Philadelphia; Bodkin, of Brooklyn and Cornwall. The papers are profusely illustrated and the whole appearance of this initial issue is of the best quality.

AN IMPOSTOR.

Last month a man, J. W. McCormack, solicited and obtained ten dollar subscriptions from physicians in the cities in the Northwest for an index of papers published in medical journals. He exhibited a sample copy of the Index, stating that he would supply reprints of any of these papers for the amount subscribed. He quoted prominent Seattle physicians as his backers and endorsers, also claiming that the editor of this journal approved of his plans and had promised editorial recognition. All of these statemens were false in every particular, and the money thus secured was obtained under false pretenses. He seems to be a bird of passage and his present whereabouts are unknown. This statement is made to warn any future victims concerning his methods of procedure.

MEDICAL NOTES

OREGON.

University of Oregon Graduation. The thirty-first commencement of the University of Oregon Medical School was held the last of May. Addresses were delivered by P. L. Campbell, President of University of Oregon, and R. T. Scholz, President of Reed College. Degrees were conferred upon fifteen graduates. The newly made physicians are: Helen I. Ahrens, Seattle, Wash.; Archie E. Bird, Vancouver, Wash.; Frank H. Campbell, Dallas; Jessie B. Farrior, Irvin R. Fox, Albert W. Holman, George S. Holeman, A. B., Alfred H. Johnston, Portland; Lester T. Jones, A. B., Forest Grove; Anna C. Mumby, Olympia, Wash.; Alfred B. Peacock, Portland; Harold M. Peery, Springfield; Homer P. Rush, Delbert C. Stanard, A. B., Portland; Laban A. Steeves, A. B., Salem; George V. Vandevert, A. B., Bend.

Central Willamette Medical Society held a meeting at Albany, June 2, followed by a banquet. The meeting was largely attended. Dr. E. A. Rockey, of Portland read a paper on "Cancer of the Stomach."

Arm Fractured in Boxing Bout. Dr. Earl Smith, of Portland, county coroner, in a recent boxing bout with "Denver Ed." Martin, weight 250 pounds, sustained a fracture at the shoulder. They went eight rounds before the mishap.

Dr. H. C. Eastland, formerly of Pendelton and Gardiner, has located for practice at Eugene.

WASHINGTON.

New Hospital to be Built. The Sisters of St. Joseph of Peace have purchased a site in the best residence section of Wenatchee, and are about to start the construction of a modern hospital which will eventually cost $350,000. The first unit will now be built at a cost of $100,000. The Sisters have conducted the Wenatchee General Hospital for a number of years.

New Hospital to be Opened. A private hospital is to be opened in Prosser which will accomodate fifteen patients, to be known as the Prosser hospital. It is a large residence converted into this purpose, to be under the charge of Mrs. Murphy, a graduate nurse.

Bids Called for County Health Officer. Adams county commissioners last month tried a new method to obtain a county health officer and county physician. They advertised for sealed bids for this office to be deposited before a certain date. The result is not at present known.

New Health Officer. F. M. Crosby, of Kennewick, has been appointed health officer of Benton County in place of Dr. C. D. Hopper, resigned.

Full Time Health Officer. The county commissioners of Walla Walla county have appointed Dr. Elery M. Botts as full time health officer at a salary of $3,500 per annum. Dr. Botts has made a special study of public health and sanitation. For sometime he has been connected with the Seattle department of health.

Appointed Health Officer. Dr. W. W. Day of Dayton, was last month appointed health officer of Columbia county.

Stevens County Medical Society met at Colville, June 22. Dr. Alfred Strauss, of Chicago, was the guest of the evening. He gave an address on surgery of the pylorus for diseased conditions and also described treatment of osteomyelitis. The following officers were elected for the present year. Pres., Dr. H. F. Craig, of Marcus; Vice-Pres., R. D. McCrae of Hunters; Secy.-Treas., Dr. W. A. Olds, of Colville. Censors: Dr. W. A. Cartwright, of Valley; J. W. Henderson and R. S. Wells of Colville.

Cowlitz County Medical Society, held its regular meeting at Kalamà, June 27. The following officers were elected for the ensuing year: Pres., L. S. Roach, Kalama; Vice-Pres., R. S. Stryker, Ridgefield; Secy.-Treas., C. J. Hoffmann, Woodland; delegate to the State Association meeting, E. C. Hackett, Kelso.

Resolutions were adopted favoring the appointment of Dr. Roach as County Health Officer for the following year.

Dr. H. H. Robinson of Northport, who has been in charge of the smelter hospital for the past two years has resigned. Dr. R. P. Moore, formerly of Davenport, has taken charge of the hospital work.

Dr. W. A. Kiteley has located for practice in Burbank. He practiced for several years in North Dakota.

IDAHO.

Medical Examination. The next examination for medical licenses for physicians and surgeons will be held in the office of the Bureau of License in Boise, October 4. For application blanks and full information concerning examinations one should write to the Bureau of License.

Addition to State Hospital. The contract has been awarded for the construction of a receiving hospital and insane ward at the State Asylum at Blackfoot, at a cost of $81,000. Work will be started at once and improvements completed as soon as possible.

Dr. H. C. Eastand, formerly of Gardiner, has located for practice at North Bend.

Dr. R. L. Edwards, recently of North Bend, has moved to California.

REPORTS OFSOCIETY MEETINGS

OREGON.

COOS-CURRY COUNTIES MEDICAL SOCIETY.

Pres., A. L. Houseworth, M.D.; Sec., F. M. White,M.D.

Coos-Curry Counties Medical Society held its regular meeting June 21, at Coquille, Ore. A fair attendance was had. Dr. Russell Keizer, North Bend, read a paper on "The Value of the Blood Count in Acute Appendicitis". He also presented several specimen appendices removed and gave the histories and blood count findings. Dr. L. G. Johnson, Marshfield, opened the discussion.

Dr. V. L. Hamilton, Coquille, presented a clinical skin infection case which was gone into and discussed but no definite diagnosis was reached. Further investigation was suggested, to be considered at the next meeting.

A committee consisting of Dr. L. G. Johnson, Russel Keizer, and F. M. White was appointed by the president to draft a new fee schedule and doctors were asked to display the same in their offices.

It was decided to hold meetings of the society in the future on the last Tuesday of each month, the meetings to alternate between the Bay cities and the Coquille Valley cities.

KING COUNTY MEDICAL SOCIETY

Pres., H. G. Lazelle, M. D.; Secy., B. F. King, M. D.

The regular meeting of King County Medical Society, Seattle, Wash., was held June 6. Dr. Lazelle in the chair. Minutes of the previous meeting were read and approved.

Dr. P. V. von Phul presented three clinical cases of aortic aneurysm, with x-ray plates, one of which had been wired by Dr. R. D. Forbes with marked improvement of symptoms.

The report of the committee on by-laws was read the second time.

Papers

Physiological, Pathological and Clinical Considerations of Blood Transfusion. By Dr. O. J. West. He spoke of the dangers of transfusion, gave statistics and types of reactions, describing clinical symptoms of the different types. He described experiments done in producing anaphylaxis. The paper was discussed by Drs. Speidel, Nixon and Garhart.

The Indication, Significance and Limitations in the Determination of Blood-sugar, Blood-urea, etc. By Dr. W. S. Griswold. He spoke of balanced carbohydrate and fat diets, and of the normal and abnormal amounts of urea encountered in the blood. There is an early and marked increase in urea in the blood in cases of intestinal obstruction. Creatinin is due to degeneration of tissue cells. Acidosis is a decrease in alkalinity. Excessive amounts of alkali may be dangerous. The Van Slyke method is the simplest method of its determination. The paper was discussed by Mr. A. Jacobson and Drs. L. J. Palmer, O. J. West and Hain.

The Clinical Interpretation of the Wassermann Reaction. By Dr. A. R. Robertson. In cases presenting positive Wassermann and no clinical symptoms, it is well to apply therapeutic test. Spinal fluid Wassermann may show positive when blood is negative. In cases of weak positive Wassermann, where clinical pathologic conditions are present which may be due to syphilis, apply therapeutic test. Paper discussed by Dr. W. R. Jones.

The application of Dr. M. C. Lile was read.

SPOKANE COUNTY MEDICAL SOCIETY.

Pres., J. D. Windell, M. D.; Secty., O. M. Rott, M. D.

The tenth regular meeting of Spokane County Medical Society was held in the Old National Assembly, Spokane, Wash., May 26.

Minutes of the previous meeting were read and approved.

Rabbi Leibert delivered an interesting address on "Spirit Fakers who are Money Makers". He spoke of primitive ways of healing by suggestion and faking. He voiced his belief in the fallacy of objective prayer, stating that Nature's laws cannot be set aside by this method. Subjective prayer has benefit because of the influence of the human mind over the body. Spirit fakers claim too much for this influence and take advantage of ingnorant and deluded people. The address was discussed by Drs. Price, Downs and Windell.

Dr. Suttner gave a resume of his experiences in gastric surgery and presented an interesting case of gunshot wound of the stomach.

Dr. Corkery discussed the interpretation of metabolic rate readings.

TRICOUNTY MEDICAL ASSOCIATOIN.

The Tricounty Medical Association, composed of the medical societies of Snohomish, Skagit and Whatcom Counties, Wash., held a successful and enjoyable meeting in the Commercial Club Rooms in Mount Vernon on the evening of June 16. There were over sixty members present. After the regular program a banquet was served in the Windsor Cafe, terminating with a number of after-dinner speeches

The Prevention of Contagious Diseases. By Dr. J. S. Purdy, Everett. Discussion led by Dr. B. F. Brooks.

The Serum Treatment of Epidemic Cerebrospinal Meningitis. By Dr. S. H. Johnson, Bellingham. Discussion led by Dr. O. A. Thomle.

The Sacroiliac Joint. By S. G. Brooks, Anacortes. Discussion led by Dr. J. R. Morrison.

PAPERS

Each of the papers read had been previously read at a meeting of one of the county societies and was selected because of its interest to be read at this tricounty meeting. After they were read at this meeting one was selected to be presented at the association meeting. It was thought this would result in high grade papers for the state meeting, and would have a tendency to improve the quality of the papers read in the county and tricounty meetings. The paper selected for the state meeting was that of Dr. S. G. Brooks, on "The Sacroiliac Joint".

This organization was made permanent with one meeting to be held in June of each year. The next meeting will be held in Mount Vernon in June, 1922.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

The Principles of Therapeutics. By Oliver T. Osborne, M. D., Professor of Therapeutics, Department of Medicine, Yale University. Octavo of 881 pages. Philadelphia and London: W. B. Saunders Company, 1921. Cloth $7.00 net.

As the title of the book indicates, it is of therapeutics that the work treats and the physiologic actions of drugs are not considered, save in respect to therapeutics. The therapeutic uses of agents are not described under the head of special diseases but under the various classes of drugs. For instance, under drugs used for action on the circulation, their specific uses in various diseases are discussed. But half of the book is given up to the consideration of theapeutic agents other than drugs, viz: vaccines, serums, electricity, heat, diet, etc.

The sections on the endocrine glands and organotherapy are very extensive and generally sensible, altho the author does not restrict himself so far as Cushing who doubts whether onyone of the glands possesses any value when given by the mouth, except the thyroid. Osborne falls into error on page 447, when he says that extracts of the posterior pituitary lobe are actively diuretic. This was the general misconception until Matzfeldt showed that the action of the posterior lobe was just the contrary, antidiuretic. However, on the next page, Osborne describes the use of the posterior lobe as an antidiuretic in diabetes insipidus.

The work is an up-to-date exposition of the principal therapeutic agencies at our command for combating disease and is, as a whole, a thoroly sensible, judicious and commendable treatise on the subject. It is rather general than specific, however, in the details of the application of therapeutic agencies and success often depends chiefly on the precise method which clinical experience has shown essential in the use of the therapeutic agent.

WINSLOW

Traumatic Surgery. By John J. Moorhead, M. D., F. A. C., Late Lt. Col., Med. Corps, American Expeditionary Forces; Professor of Surgery and Director Department of Traumatic Surgery, N. Y. Post Graduate Medical School and Hospital. Second Edition, Entirely Reset. Octavo of 864 Pages with 619 Illustrations. Philadelphia and London. W. B. Saunders Company, 1921. Cloth $9.00 Net.

Industrial surgery or accident surgery has become a specialty, and the operation of compensation and allied laws is forcing the practitioner to realize its new position. Moorhead's work is the recognized authority in this specialty and treats of all conditions of traumatic surgery, as well as many minor surgical diseases not directly related to trauma as, for instance, infections, hammer-toe, felons, bunions, burns, etc. An effort has been made thruout to standardize treatment. Naturally a large portion of the book, more than one-third, is devoted to dislocations and fractures, presenting thus practically a complete monograph on this subject. The author's experience and reputation, the numerous illustrations and the detailed description of all new and tried forms of appartus make this section of unrivaled value. There are important chapters on injuries in relation to abortions, appendicitis and visceral prolapse, traumatic neuroses and medicolegal phases.

Forbes

Keen's Surgery. Volume VIII. By Surgical Experts. Edited by W. W. Keen, M. D., L. LD., Hon. F. R. C. S., Eng. and Edin., Emeritus Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia. Octavo of 960 pages with 657 illustrations, 12 of them in colors. Philadelphia and London: W. B. Saunders Company, 1921. Price: Volume VII and VIII and Desk Index Volume Cloth, $25.00 net per set. Sold by subscription.

A separate desk index accompanies this final supplementary volume of Keen's Surgery and makes available the items of the entire work. Volume VIII treats of the newer surgical thought on muscles, endocrines, amputations, bones, joints, head and thorax, abdomen, genitourinary, radium, x-rays, anesthesia and legal. The names of the contributors form a list of America's foremost active workers in this field today. As in volume VII, each chapter adequately describes the advances in that field of the last eight years, and in some of them the development has really been within that period. A uniformity of excellence characterizes the work of the writers and, as in all preceding volumes, there is a wealth of illustration by diagrams, charts, prints, photographs and x-rays. Its 1800 pages bring the total of the eight volumes to 8700 pages. The system thus places before the profession the last word in surgical principles and practice and records every worth while surgical achievement since the war.

Forbes

Physical Diagnosis. By W. D. Rose, M. D Lecturer on Physical Diagnosis and Associate Professor of Medicine, University of Arkansas, etc. Second Edition. 309 Illustrations. Cloth. 736 Pp. $8.50. C. V. Mosby Co., St. Louis. 1921.

It seem to the reviewer that this work does not offer any advantages over and above several standard text-books on the same subject. Indeed, there is a lack of precision and careful description notable in connection with many subjects. As examples of this criticism the following instances may be noted. In the description of palpation of the liver and gall-bladder, hooking the fingers under the ribs during deep respiration, so as to feel the edge of the liver or to elicit gall-bladder tenderness, is not spoken of. Then much space is given to percussion of the liver, but this is notoriously deceptive and, unless one can actually feel the edge of the live, the evidences of enlargement by percussion should be disregarded.

Again, under functional murmurs, it is stated that they are only occasionally encountered at the aortic area. This is flagrantly erroneous, as such murmurs are exceedingly common. Furthermore, mitral systolic murmurs are said to be caused by deformity of stretching of the mitral valves and the inference would be drawn that they are usually of pathologic significance. On the contrary, a mitral systolic murmur alone is of no pathologic significance, unless associated with cardiac enlargement, abnormal reaction to exercise, history of steptococcic infection, or alteration in the heart sounds. Pure mitral regurgitation probably does not exist as a pathologic entity without stenosis, and systolic murmurs may be disregarded unless associated with other pathologic signs or conditions noted. There is a short paragraph devoted to the most common of all pathologic arrhythmias, auricular fibrillation, in which the most essential diagnostic point is omitted. That is the fact that a large percentage of the cardiac pulsations is not transmitted to the radial pulse. It strikes the reviewer, to put it mildly, that this book is capable of much improvement, if it is to equal or excel other standard works on physical diagnosis. .

Winslow

The Surgical Clinics of North America. (Issued Serially, one volume every other month) Volume I, Number 1. By Philadelphia Surgeons. Octavo of 259 pages, with 112 illustrations. Per Clinic Year (February to December), Paper $12.00 Net; Cloth $16.00 Net. Philadelphia and London: W. B. Saunders Company.

The first contribution is a splendid discussion by Deaver of pancreatitis in all its aspects. Beginning with the embryology and anatomy of the pancreas he continues with the consideration of its physiology and pathology. It is shown that necrosis, hemorrhage and gangrene, in acute lesions, are caused by the activation of the trypsin and steapsin ferments by toxins of bacteria, by damming up of bile in the pancreatic ducts or by trauma. It is thus the excessive action of the proteolytic ferment (trypsin) which breaks down pancreatic tissue and leads to hemorrhage and gangrene, and the steatolic ferment which leads to fat necrosis in the pancreas, omentum, etc. In chronic pancreatitis the infection usually occurs thru the retroperitoneal

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chain of lymphatics which drain the appendix, duodenum, pylorus and gall-bladder. The natural flow of lymph is from the gall-bladder and duodenum toward the pancreas. Hematogenous infection and infection from the pancreatic ducts apparently play a minor role in the etiology of pancreatitis. Cholecystitis is by far the chief source of pancreatic disease and 75 per cent of cases of acute pancreatitis occur in women. It is curious, however, that Deaver finds chronic pancreatitis more frequent in men (58 per cent. The preventive means in the avoidance of pancreatitis consists in the removal of the foci of infection—in cholecystectomy, appendectomy and operations for the cure of pyloric or duodenal ulcer. This is a very valuable number but space forbids us from noticing other equally instructive contributions to this most practical of all medical publications. WINSLOW

A Physical Interpretation of Shock, Exhaustion and Restoration. By George W. Crile, Senior Consultant in Surgical Research, A. E. F. 1917-1918; Professor of Surgery, School of Medicine, Western Reserve University; Visiting Surgeon to the Lakeside Hospital, Cleveland, Ohio. Original Illustrations. 232 Pp. $8.75. Oxford University Press, London and New York. 1921.

This latest output of the Crile Clinic is closely related to its predecessors in the matters of style and contents, new material consequent upon researches in France being added thereto. The author claims to summarize the reseaches of years which have been carried on in his laboratory, and to formulate correlative interpretations of findings pertaining to shock, exhaustion and restoration. Much data have been furnished from the laboratory in France which has carried on researches relative to the problems of military surgery. Thruout the work the physiologic laboratory and microscopic evidence have formed the basis for clinical interpretations, and the mechanism of such conditions as collapse and death, exophthalmic goiter, malignant and benign tumors and their treatment, by radium, nitrous-oxide and ether anesthesia, have been thus explained on physical grounds.

The practical application of the kinetic theory leads naturally to the shockless operation, thru anoci-anesthesia, the fundamental principles being elaborated and detailed suggestions given under regional surgery divisions. The outcome is seen in the progress in the Lakeside Clinic, where statistics are definite in recording a lowered mortality rate for bad risk patients, with an extention of the range of operability. The author does not claim to survey the recent work of others, and the laboratory findings are given largely without this reference. FORBES

Principles Of Hygiene. A Practical Manual for Students, Physicians, and Health-Officers. By D. H. Bergey, M. D., Dr. P. H., Assistant Professor of Hygiene and Bacteriology, University of Pennsylvania. Seventh Edition, thoroughly revised. Octavo of 556 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $5.50 net.

This work has been noticed many times in our book reviews. In the present seventh edition there are many additions, due to added knowledge gained from enormous experience acquired during the late war. The disinfection of water, streaming thru a chamber, lighted by the ultra-violet ray, generated with a mercury-quartz lamp, appears to be as successful as it is novel. Under the consideration of food and diet the author noted that war edema was caused by a diet rich in carbohydrates but poor in fat and protein and a similar state has been experimentally produced in animals with a like diet.

Under vitamines it is pointed out that the fat-soluble vitamine is found chiefly in cod liver oil, cream, in leafy vegetables and tomatoes, and is particularly essential for nutrition and growth in children. A deficiency of the fat-soluble substance is apparently the cause of rickets and hence cod liver oil is a specific, being the nutrient most rich in the fat-soluble vitamine. The water-soluble vitamine is essential to nutrition at all ages and is found in orange juice, tomatoes, brewers yeast, leafy, vegetables, especially spinach and cabbage and in apples and pears. Without it beri-beri and war dropsy are particularly prone to develop. Under epidemiology the terms transmissible by direct contact, and transmissible by indirect contact, are preferred to all others. This work is admirable as a condensed summary of the more important matters in public and personal hygiene.

WINSLOW.

Operative Surgery. By John J. McGrath, M. D., F. A. C. S. Professor of Surgery, Fordham University. Sixth Revised Edition, with 369 Illustrations. 863 Pp. $8.00 F. A. Davis Company Philadelphia. 1921.

The sixth edition has been enlarged on the basis of its predecessor, and with few exceptions all matters seem to be brought up to date. The description of operations in this volume are adequate, and while the illustrations are not as profuse as in the systems, they are well selected and sufficient. We commend the work for its completeness and brevity. FORBES

A Primer for Diabetic Patients. A Brief Outline of the Principles of Diabetic Treatment, Sample Menus, Recipes and Food Tables. By Russell M. Wilder, M. D., May A. Foley, and Daisy Ellithorpe, Dietetians, The Mayo Clinic. 12 mo of 76 pages. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $1.50 net.

This little volume is a brief outline of the principles underlying the dietary treatment of diabetes. It contains a few statements about dietary management and the general subject of diabetes, together with a useful collection of diet menus and recipes. It is intended to be placed in the hands of patients for their guidance and instruction. SMITH

NORTHWEST MEDICINE

The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah

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ADDRESS

CONTRIBUTION OF MEDICAL SCIENCE TO HUMAN WELFARE.*

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PORTLAND, ORE.

A joint medical meeting of the Northwest constitutes a fitting occasion, and the president's address is probably a fitting medium for a succinct summarizing of the fruitful denouement of the advance and progress of medical science and medical research during the last fifty years.

To epitomize, before enumerating facts, attention may be directed with pride to the following figures: first, no more than two hundred years ago the average human life was seventeen years; second, about thirty years ago the average human life was thirty years; third, at the present time the average human life is nearly forty-five. To whom and to what is the credit to be given? What has been the contribution to this great conservation of human life of the various isms, pathies and cults? They exist by their ability to gain popular favor, and live upon popular credulity, maligning the medical profession and casting calumnies and insults upon the medical men and the medical science which have brought to pass this fortuitous conservation of human health as well as human life.

The medical profession has been sitting, to quote Shakespeare, "like patience on a monument smiling at grief," and vainly hoping that the acumen and perspicacity (which is not conspicuously developed in the average cerebrum) would discern the truth and comprehend unheralded facts, and would come forward in appreciation of its efforts and at the same time shun the ignorance of the isms which we know stand upon a foundation not of granite but of verbosity.

The lowering of infant mortality has materially raised the average of human life. The value of pure milk, sterilized food and other hygienic measures is generally recognized, but not adequate credit is given to the great advance in the science of pediatrics, which has enormously curtailed the death rate of childhood. The control of diphtheria and the limitation of the spread of other contagious diseases have also lessened the morbidity, as well as mortality, of infancy and childhood. In fact, the lessened birth rate has failed to have any influence on the population increase of civilized nations. The American mother, who now brings into the world a lesser number of children than her great-grandmother, raises to maturity practically 100 per cent whereas her great-grandmother did well to raise 50 per cent to adult life.

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*President's Address read before the Forty-Seventh Annual Meeting of Oregon State Medical Association and Fifth Tristate Meeting, Portland, Ore., June 30-July 2, 1921.

Considering the population increase, it can be noted rather definitely that the population of this country will increase to a larger percentage by natural accretions than fifty years ago. With the present life average of forty-five, every woman has a chance of living out her full child-bearing life, whereas fifty years ago, with the life average of less than thirty, women lived out on an average no more than half this period. Analysis of the population statistics of this country demonstrates the fact that the population increase in the United States has come about very largely by natural accretions, rather than by immigration, as is popularly supposed.

The increase in the adult life average term has been brought about by three fundamental advances in medical science. First, the science of preventive medicine; second, the science of surgical treatment; and third, the science of medical treatment. It is probable that the relative percentage of conservation is in accord with the order as stated. The importance of preventive medical science cannot be over estimated. Well known is the salutary influence of potable water and the efficient protective influence of the vaccinations against typhoid, cholera, small pox, tetanus, etc. Those of us who have had a personal medical observation for twenty-five years can more clearly see than others the lessened morbidity which comes from the hygienic measures of food inspection and the fly and mosquito elimination. It is difficult to realize that the first appendix was removed no earlier than 1889. We now know the numerous lives that are saved and illness prevented by timely surgical procedures for the acute appendix, the gall-bladder, the various perforations of the alimentary tract and many other conditions. Suffering and sickness of many types are prevented directly or indirectly by various surgical procedures, by the removal of infected tonsils or other sources of focal infection which feed out a constant stream of debilitating toxins into the human system. The goitre death is becoming far less frequent. The old hunch back, following a tuberculous spinal lesion (who escaped death), no longer walks the streets in front of our eyes, for his lesion is healed in the early stages by the spinal graft.

So far as surgical science is concerned the control of cancer has made enormous progress and promises a wonderful increase in cancer cures. The great obstacle which now confronts the cure of cancer is the delay of early operation. The education of the people to the dangers of cancer and the imperative importance of early surgical eradication must be pursued with energy and vigor. Work in this line should be followed out individually by medical men, as well as giving their support to the department of the American Medical Association concerned with public education on medical matters, and to the activity of the American Society for the Control of Cancer.

Reference may be briefly made to a record of over 10,000 postmortems of persons dying of cancer, which showed that in 19.5 per cent of these deaths cancer was still a local lesion and metastasis had not occurred. Granting that some of these might have been in anatomic situations not permitting of excision, we must also consider that many of the 80.5 per cent, in which metastasis had occurred, might have had the growth successfully removed before metastasis did occur. Therefore, it is not unreasonable to assume that one out of every five of those who died of cancer in this series could have been saved by a timely surgical procedure. The cancer question is now a paramount issue of the fact that there are now relatively a greater number of cases of cancer presented for consideration than in years past. The facilities for diagnosis have been greatly increased and, therefore, cancer more often comes to our attention in its early stages. Of greater importance, however, is the fact that cancer, a disease which seldom appears before the age of thirty-five, must now become more prevalent because of the fact that the average human life has been raised to about forty-five years. People who formerly died of typhoid and other diseases which are now prevented have the opportunity of living to an age where they may have the distinction, if not the pleasure, of acquiring cancer.

The science of medical treatment has greatly lessened the death rate from many medical diseases. The improvement of diagnostic facilities, as well as the recognition of the significance of symptoms which were formerly not understood, has enabled the internist to achieve successes hitherto unknown, and to conserve the health as well as save the lives of many persons.

In the face of all of the facts which have been briefly enumerated, so well known to the medical men, the medical prefession finds itself confronted by subtle types of opposition, of cleverly conceived cults, of skillfully disguised pathies which prey upon the credulity of the uninformed, profiting themselves thereby, at the same time injuring materially the medical profession. Too much stress cannot be laid upon the importance of those medical organizations which will protect as well as defend the advance of medical science, and at the same time protect as well as defend the people at large who merit, as well as profit by, medical protection and defense. We can point with pride to the work of the Leagues for the Conservation of Public Health which have come into existence and can confidently hope that their work will, with the solid support of all medical men, continue to make increased strides in attaining ends which are first beneficial to the public at large and of no inconsiderable importance to the profession itself. The work of the League for the Conservation of Public Health in California has fully demonstrated its efficiency during the last four years, and the work of the younger Leagues in Oregon and in Washington have in the past few months given adequate demonstration of the potency and importance of their activities. It behooves each and all of us to back them up with our personal influence, as well as with financial aid.

Serial Quantitative Method of Culture in The Study Of Respiratory Disease. Arthur L. Bloomfield, Baltimore (Journal A. M. A., July 16,1921), endeavors to show, by quoting the work thus far done, the futility of single qualitative cultures in respiratory disease, and to emphasize the importance of the serial quantitative method. Extensive use of this method may eventually make clear the relation of the bacteria found in the throat to acute and chronic disease; it may aid in solving the question of primary and secondary invaders, and it may give leads to rational vaccine therapy by enabling one to pick out the offending organism with greater accuracy.

ORIGINAL CONTRIBUTIONS

NEPHRITIS.*

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It might have been preferable to have selected "Bright's disease" as the title of this lecture, because it is naturally impossible to deal with all types of inflammation of the kidneys in the course of a short hour. Even if we limit our subject to the hematogenous inflammations which are associated with the symptoms of Bright's disease, our task is still so large that we can cover the most important points only.

In this process of elimination we also have to omit from consideration the more or less purely degenerative lesions of the kidneys which result from poisoning with comparatively simple inorganic or organic chemical compounds. Experiments with these substances have taught us much in regard to the various forms of degeneration of the renal epithelium and in regard to its regeneration; they have also given us some valuable clues in regard to renal function under normal and pathologic conditions, but they do not reproduce the whole combination of circumstances which we observe in Bright's disease and for this reason actually have been misleading to some extent.

In our textbooks it is customary to subdivide nephritis into a great variety of different types largely on an anatomic basis, altho the clinicians also have been quite busy making subdivisions of their own. The result has been an avalanche of discordant names and much confusion. These attempts are justified by the desire to separate out from the large field of nephritis certain more or less well defined anatomic entities, with the hope that they might also be different from an etiologic point of view and might produce a characteristic clinical symptom-complex. Such a segregation into various more or less well defined groups might throw light on two things, which are of vital interest to the clinician, namely, on the cause of the disturbances and on their prognosis. The whole situation reminds one a little of our difficulties in regard to tuberculosis before the tubercle bacillus was discovered. A great deal of ingenuity was expended in trying to find some anatomic criterion for the disease and also in trying to segregate the different types of tuberculosis, treating some of them as entirely different diseases. This confusion disappeared at once with the discovery of the tubercle bacillus and, when we now study the different forms of tuberculosis, we are thoroly aware of the fact that they are but modifications of one and the same disease.

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*Noble Wiley Jones Lecture, deliered at the Medical School of the University of Oregon at Portland, Ore., June 1, 1921.

Similarly, true nephritis with its associated conditions, even with inclusion of the cardiovascular changes, should be regarded as a pathologic and clinical entity, until it is demonstrated that certain types can be separated from the whole without doing violence to the facts. One misfortune is that we have no term broad enough to cover the whole subject. "Renovascular disease" is rather indefinite, but may be useful, if only it is thoroly understood that, even tho the disease usually affects both kidneys and blood vessels, it may involve one or the other of these systems more or less exclusively and also that there are rarely instances in which all that is present is a continued functional derangement somewhere in the vascular system alone.

In my first lecture we have looked at this disease from the point of view of the conditions in the vascular system, today our first concern will be with what happens in the kidneys. In speaking of nephritis proper we first have to make one important distinction, namely, that between diffuse and focal types of the disease, not as if they were essentially different, because they are not, but because the final result is so different. Focal lesions may give rise to violent disturbances of a temporary nature, but they may heal after a while and, so long as there remains sufficient reserve tissue, no permanent damage remains. Diffuse lesions may heal, if they are comparatively slight from an anatomic point of view, but if they are severe there is very little hope of complete recovery. It is evident, however, that focal lesions may do permanent damage, if only they are large enough and sufficiently widely disseminated.

We also distinguish between acute, subacute and chronic nephritis. The dividing line between these three types is, of course, entirely arbitrary and a given case may be difficult to classify, but there are sufficient anatomic and clinical differences to separate these groups fairly clearly.

At this point I wish to point out that it is very unlikely that the lesions in the subacute or chronic cases were ever exactly like those in the acute cases, or those in the chronic cases at any time exactly like those in the subacute cases, because as a matter of fact the lesions in the acute subacute cases are so severe that they cause death early, whereas in the chronic cases life may persist for many decades.

In the following I shall attempt to sketch briefly the picture of acute, subacute and chronic nephritis both diffuse and focal.

ACUTE NEPHRITIS.

It is generally recognized that in the development of acute nephritis streptococcal infections play an important role. There are numerous other infections which may damage the kidneys and at times quite severely. They even may produce real inflammatory changes in them, as in the acute interstitial nephritis of diphtheria, but of all bacteria the streptococci and their toxins are most likely to affect the kidneys severely. The severity of the renal involvement, however, by no means depends on the virulence or on the extent of the streptococcal infection. Sometimes the primary lesions may be quite insignificant and the disease of the kidneys very serious and in other cases exactly the opposite is true. The original focus of infection may be situated in any part of the body but the tonsils seem to be relatively frequently at fault, as was first pointed out by Curschmann. On account of the slight and transitory nature of the clinical symptoms associated with the development of the primary focus, it is not always possible to find it clinically or even detect it anatomically and in such cases naturally other causes have been searched for.

This seems to have been especially true of the so-called trench nephritis in the late war, but even here many careful observers suspect the wily streptococcus. It is of course quite possible that the toxins of microorganisms other than the streptococci or other complex-poisons may have a similar influence upon the kidneys. In scarlatina, which is so frequently followed by nephritis, we are not at all certain whether the nephritis is caused by the unknown virus of scarlatina or by the coincident streptococcal infection.

The anatomic lesions in acute diffuse nephritis consist in an acute congestion with considerable exudation, causing a bright red discoloration and edematous swelling of the affected organ. This is frequently associated with hemorrhages from the glomeruli which show as minute petechial spots in the gross specimens. In the exudate there are often quite a few leucocytes which accumulate in the kidney tissue, both between and in the tubules and naturally appear with the blood and casts in the albuminous urine. Even the streptococci themselves may be found in the sediment of the urine, but they can be demonstrated in sections of the renal tissue only very rarely. In mild cases the lesions probably do not progress beyond this point, but in bad cases quite severe lesions are apt to develop, particularly in the glomeruli. They consist in a peculiar form of necrosis associated with the thrombosis of the vascular loops, swelling and proliferation of the capsular epithelium and the filling of the dilated capsular spaces with coagulated exudate. Even at this stage a fairly complete recovery may still take place. Some of the loops of the glomeruli may be doomed, but the majority of them may again become pervious, the exudate in the capsules may be dissolved and carried away and the epithelium of the capsules may return to a normal condition. Our experience in scarlatinal nephritis of this type seems to show that the glomruli may bleed excessively, when the circulation is reestablished in them.

Clinically cases of this kind may have the appearance of an acute nephritis ending in complete recovery, while anatomically damaged glomeruli surrounded by little scars may remain. This would leave permanent lesions of a focal character, altho the original changes had been diffuse.

The delicate epithelium of the uriniferous tubules naturally suffers more or less severly in all cases of acute nephritis. It is swollen, granular, often fatty and eventually quite extensive necroses may occur. A certain amount of desquamation seems unavoidable, judging from the fact that free renal epithelial cells appear in the urine practically in all cases and also may be demonstrated in sections in the lumen of the tubules. In severe cases the epithelium is apt to come off in sheets with the formation of epithelial casts.

The infiltration of the interstitial tissue with inflammatory exudate is always well marked and sometimes excessive. At first polymorphonuclear leucocytes abound in the lesions especially when the exudate is fairly plentiful. Later they become mixed with eosinophiles and lymphocytic cells.

If the original infection which caused the acute nephritis subsides, there seems to be a marked tendency to complete recovery but if the infectious focus persists, as it is apt to do in the tonsils, then the development of the lesions goes on and, unless death intervenes, the acute nephritis gradually assumes a subacute character.

In the acute cases already we may meet with two "associated" phenomena which are of great interest. One of these is edema, the other high blood-pressure. Edema is so common in acute nephritis, that it is sometimes forgotten that there are cases with very little if any edema. These are the ones which are likely to be overlooked clinically, because under these circumstances, unless the urine is grossly altered by the admixture of much blood, the existence of the disease can be made out by urinanalysis only.

I feel that in the interpretation of the origin of the renal edema we have been assisted very much by the careful investigation of uranium nephritis in animals. This experimental work seems to have quite definitely established the fact that in this form of nephritis, at least, the edema is due to the direct toxic action of the uranium on the endothelial lining of the blood capillaries in those places in which the edema makes its appearance. I believe that a similar state of affairs exists in all cases of human nephritis with renal edema. It has always been a puzzle, how nephritis as such could produce general edema, whereas all difficulty disappears, if we assume that the toxic substances which produce the nephritis do not only damage the capillaries in the kidneys as they undoubtedly do, but also may and often do damage the capillaries elsewhere. This would readily explain the first appearance of the edema where the capillaries seem to be most delicate and vulnerable and would also explain the lack of influence of gravity on the localization of the edema. If these toxic substances do not affect the endothelium of the capillaries sufficiently, no edema develops. Salt retention is natural, when large amounts of salty fluid run into the tissues and even the good effects resulting from a salt free diet may be explained, if the damaged capillaries should be rather sensitive to salt, as it is quite possible.

The observation that in cases of nephritis with prolonged edema the degenerative lesions in the epithelium of the kidneys are particularly well marked has attracted much attention. From this fact the conclusion has been drawn that types of nephritis in which the epthelial lesions are most prominent, the so-called "nephroses," in some way cause the development of general edema. I believe that it is much more probable that the marked edema of the kidneys, which usually is present in cases of general edema, favors the development of degenerative lesions in the epithelium. The widespread epithelial degeneration in the kidneys, therefore, may be just as well the result of the edema as the cause of it.

In my previous lecture I have already dealt to some extent with the questions relating to hypertension. The functional nature of the disturbance is, of course, most clearly shown in the early cases of nephritis in young individuals, where there is no question of any anatomic changes in the blood vessels.

The mere reduction of the amount of functionating kidney tissue does not produce any marked rise in blood pressure or any very definite hypertrophy of the left ventricle. This we may conclude from numerous observations in man of cases in which the amount of functionating kidney tissue is greatly decreased, sometimes as a result of nephritis but more commonly from other causes, and in which neither the blood pressure is increased nor the size of the heart much altered. Experiments on animals have also quite generally given negative results, in spite of the fact that in them the amount of functionating tissue was reduced surgically to the very minimum compatible with the persistence of life. The positive changes in blood-pressure and relative size of the left ventricle, observed by Pässler and Heineke in few of their dogs with experimental reduction of kidney substance, are comparatively so slight that not much weight can be attached to these observations. The changes in blood pressure in typical cases of nephritis in man are so striking that. if they were due to a reduction in functionating kidney tissue, their reproduction in animals should be an easy matter.

In spite of numerous attempts no other direct relation between high blood-pressure and abnormal conditions in the kidneys has ever been demonstrated. We must conclude, therefore, that the rise of pressure is due to some extrarenal factor and it appears to me most likely that it is connected in some way with those abnormal conditions, which provoke the nephritis itself. I acknowledge that this hypothesis still lacks sufficient experimental proof and should receive the same before it is finally accepted.

In acute nephritis more or less definite symptoms of uremia may also be observed, but since this condition occurs so much more frequently in subacute and chronic cases I shall speak of it later on.

The best known type of acute *focal* nephritis is that which often develops in cases of endocarditis, due to streptococcus viridans infection. Löhlein first described the characteristic lesions which consist in a partial, probably embolic destruction of glomeruli, followed by organization of the dead mass and possibly by a certain limited amount of scarring in the immediate vicinity. In the beginnig the urinary changes may be quite marked but the disease exhibits a great tendency to spontaneous recovery, probably on account of the slight affinity of the infectious agent and its toxins for the kidney.

SUBACUTE NEPHRITIS.

The great importance of chronic septic infections is also usually quite evident in cases of subacute diffuse nephritis and there is fairly general agreemention this point. In all of ours autopsy revealed definite evidence of chronic suppurative tonsillitis, even in those cases in which clinically this had not been suspected. In some there was present a definite clinical history of repeated attacks of tonsillitis, sometimes associated with articular rheumatism and endocarditis. The original infection usually takes place in childhood or early adolescence. Naturally the persistent septic focus may be situated elsewhere than in the tonsils. One of my earlier cases, for instance, had a chronic streptococcal osteomyelitis.

The disease may last from several years to a decade or more. When the patients arrive at the hospital in the last stages of this disease, which evidently may exist for a long time without producing any very striking general symptoms, the disturbances may be so acute that a clinical diagnosis of acute nephritis is made. Towards the end the progress of the disease is apparently very much accelerated, because then we frequently observe very rapid exacerbation of all manifestations within a few months.

The lesions in the kidneys naturally vary according to the age of the process. In early fairly acute cases the kidneys are swollen considerably, often distinctly edematous, full of petechial hemorrhages, more or less opaque, mottled. In late more chronic cases there may be already considerable shrinkage to normal size or even below. This contraction is usually rather diffuse and leaves the surface of the organ fairly smooth. The opacity and mottling remain, but the hemorrhages are often not so plentiful.

On microscopic examination we find evidences of congestion and edema; a heavy, fairly diffuse infiltration of the interstitial tissue with leucocytes, (at first mostly neutrophilic and eosinophlic cells, later more and more lymphocytes); a progressive also diffuse, at first cellular, later more fibrous proliferation of the connective tissue, intracapillary and often extracapillary proliferative changes in the glomeruli which eventually lead to destruction and fibrosis; blood, leucocytes and numerous casts in the tubules; severe parenchymatous and often fatty changes in the epithelium.

With such active changes in the kidneys the urine, which in the beginning usually is rather scanty but in the end may be secreted in excessive quantity, naturally contains much albumin, often blood, many casts of various description, leucocytes. Bacteria usually cannot be demonstrated in urine obtained with aseptic precautions and they are not found in sections of the diseased kidneys. The excretion of phenosulphonephthalein is often delayed, frequently distinctly diminished and in the end almost completely suppressed.

In the later cases the blood-vessels in the kidneys may show severe early lesions, but these may be completely absent. The arteries in the rest of the body also may show beginning alterations. Altogther these cases are especially suitable for the miscroscopic study of early arterial lesions.

The blood-pressure, after a while, always seems to become elevated, at first moderately, but in the end it may run up very fast to 200 mm. mercury and more. The functional nature of this disturbance is, of course, still very evident on account of the lack of severe general arterial lesions in this type of nephritis. The longer the high blood-pressure lasts and the higher it is, the more evidence there is as a rule of hypertrophy of the left ventricle which at first is not associated with dilatation. In long continued cases clinical and anatomic evidences of beginning dilatation and decompensation may become evident.

Edema develops frequently and often early and in a very severe form, but there are patients in whom it appears in a very transitory light fashion or only late in the disease. In one of our fairly chronic cases edema was not observed at any time.

The patients frequently suffer from severe progressive secondary anemia which very probably is due to the direct influence of the toxins of the strepotococci upon the red blood corpuscles and possibly upon the bone marrow.

Uremic manifestations are observed not at all rarely in the more chronic cases. These may be of the convulsive type, associated with headache and vomiting and then sometimes occur rather early. During the convulsive state the pressure of the spinal fluid is apparently high and it is not unlikely that the symptoms are provoked by a sudden edematous swelling of the brain. In the final stages of the disease true uremia with a definite increase of the non-coaguable nitrogen in the blood may develop. The usual symptoms are prostration, anorexia, twitching of the muscles, eventually violent delirium or coma. The final uremic stomatitis and enteritis are seen more commonly in chronic nephritis.

In a few of our late cases there were marked disturbances of vision resulting from albuminuric retinitis. The degeneration in the retina is probably closely associated with a toxic edema of this membrane, caused by changes in the endothelium of its blood capillaries. The severity of these capillary changes is evidenced by the multiple hemorrhages which are always present.

Death in patients with subacute diffuse nephritis results from their original septic infection which is then usually associated with severe endocarditis or from uremia or from cerebral hemorrhages or embolism.

Among the late cases of subacute diffuse nephritis may be mentioned a peculiar form of what has usually been described as chronic parenchymatous nephritis in connection with amyloid disease. The kidneys in these cases are usually very large and of a white or putty-like color. The glomeruli and the vasa recta are full of amyloid. The tubules are large, the epithelial cells in them are in an advanced state of parenchymatous degeneration, full of hyaline droplets, sometimes also full of fat. The lumina of the tubules may contain some blood and many polymorphonuclear leucocytes and always do contain very many hyaline and often waxy casts which are also found in profusion in the urine. The latter is rather plentiful, rich in albumin. The kidney tissue is edematous and the interstitial tissue more or less infiltrated with leucocytes. In the later stages we observe an apparently very slow, rather diffuse proliferation of the connective tissue and a slowly developing fibrosis of the glomeruli. Clincally the disease is frequently associated with edema, rarely if ever with hypertension. Most of the patients die in the late subacute stage, but occasionally the disease goes on to shrinkage with the development of contracted kidneys and the usual clinical symptoms associated with *chronic* nephritis.

Of subacute focal nephritis we know very little. If it occurs at all, it does not cause any characteristic symptoms nor lead to death during the subacute stage. It is quite possible, however, that subacute focal nephritis may play some role in the development of chronic nephritis, because in this disease the lesions are usually of a more focal character.

CHRONIC NEPHRITIS.

The question of etiology presents a much more difficult problem in chronic nephritis. The disease develops slowly and insiduously, so much so that when alarming symptoms arise much time has elapsed and the origin of the trouble is shrouded in obscurity. A very carefully taken history, however, may reveal fairly clear evidnece of long preceding septic infection or it may be possible by anatomic investigation to still discover a more or less active focus in the tonsils or elsewhere. The infectious agent usually is the streptococcus, but in one of our cases we found an old septic infarct in the spleen, containing a pure culture of influenza bacilli. The more carefully the cases are examined both clinically and anatomically the more likely one is to discover evidences of such early and long continued infection. The original infection often dates back to childhood and early adolescence. In our last series our results in this regard have been much better than among our early cases, in which the data were not quite so complete. I also think that we have a right to conclude by analogy that, if the acute and subacute forms of nephritis are so evidently due to septic infection, the same is rather likely to be true in the chronic cases also.

The anatomic lesions in the kidneys vary quite a little and for this reason many efforts have been made to subdivide this large group along anatomic lines. No generally satisfactory classification, however, has been developed.

The common feature in all cases is extensive fibrosis with more or less shrinkage. The gross appearance of the kidneys differs considerably according to the distribution of the newly formed fibrous tissue and the amount of shrinkage that has taken place. In some cases the connective tissue development is rather diffuse, as it usually is in subacute nephritis. The result is a contracted kidney with rather a smooth surface.

In other cases the so-called granular atrophy develops, because we have alternating small areas of fairly normal kidney tissue and contracted parts, in which the tubules are more or less completely collapsed. This granular appearance may become still more exaggerated by a compensatory hypertrophy of the comparatively normal parts. The appearance of granular atrophy represents, perhaps, the most common gross picture of chronic nephritis. Then there are kidneys full of large scars, mixed with large pieces of fairly normal tissue, with or without compensatory over-growth of the latter. A kidney like this has a coarsely nodular, frequently more or less lobulated appearance. None of these differences are of essential importance except that the disease is really diffuse in the first type only; in the latter types it is focal but sufficiently extensive to affect large areas in both kidneys.

The histology of the lesions also differs quite a little in different cases. The glomeruli in the affected portions may all be collapsed and fibrous or it may be possible to still find late subacute lesions in some of them. On careful search the latter is often the case.

Sometimes the collapsed glomeruli show a capsular fibrosis only, at other times the fibrous tissue is found all thru them as in true glomerulonephritis. They often contain remnants of hyaline material, occasionally even amyloid.

The scars in the renal tissue vary in size, distribution, more or less cellular character of the connective tissue, amount of leucocytic infiltration. Sometimes the process is evidently still progressive, at other times practically extinct.

In the scars we find remnants of collapsed tubules, frequently also cysts filled with hyaline material. In certain of these cases the development of cysts is quite a prominent feature, so much so that the kidneys in the gross are distinctly cystic. The collapsed tubules sometimes are full of casts.

The arterioles and the small arteries may be almost entirely normal even in far advanced cases;

more commonly they are badly diseased. Here also the lesions at least partly may be comparatively fresh, but in many cases they are evidently old and the thickened intima then is full of elastic fibers and elastic membranes.

In the comparatively normal parts the glomeruli may show some partial old or more recent lesions; frequently they are fairly normal but often distinctly enlarged. The epithelium in the tubules may show various forms of degeneration. A tendency to desquamation is commonly observed. In other cases what remains of functionating epithelium may be fairly normal. A marked enlargement of the tubules with dilatation of the lumen is quite common. These dilated tubules may contain unusually large hyaline or waxy casts.

Experience shows that the amount of urine excreted in such cases is fairly large. In fact there is often observed a distinct polyuria. Frequently the urine has a fixed low specific gravity (hyposthenuria), demonstrating the inability of the kidneys to produce a properly concentrated secretion. Bradford has first shown experimentally that this is the direct result of excessive reduction of functionating kidney tissue.

The amount of albumin and the number of casts present varies in different cases and at different times in the same case. Careful continued examination usually reveals periods of rather severe albuminuria and cylindruria. Red blood cells and leucocytes occur but rarely in the sediment, unless there is a recrudescence or if there are complications lower down in the urinary tract. The secretion of phenolsulphonephthalein is usually distinctly impeded and in the late stages nearly completely suppressed.

As has been pointed out especially by French clinicians, in this group there are what they speak of as "dry" and "wet" cases, the "wet" ones showing a marked tendency to edema, the others running along for considerable periods without any signs of this condition. In a general way this is perfectly true, but the two types cannot be strictly separated, because "wet" cases may become dry and cases without edema may suddenly change in type and become markedly edematous.

The edema in chronic nephritis may be due to endothelial damage in the blood capillaries as in acute and subacute nephritis, or may be of cardiac origin, when in the later stages of the disease the hypertrophied heart becomes incompetent. How far the edema in a given case may be due to one or the other cause, it is not always easy to decide.

The blood-pressure is usually distinctly elevated, sometimes to 250 systolic or more. There are exceptions to this rule, however. The patients may not show *any* rise in blood pressure and at autopsy the heart may be of normal size or even atrophied. The height of the blood-pressure bears no relation to the local arteriosclerosis in the kidneys or to the amount of general involvement of the blood-vessels or to the extent of involvement of the kidney tissue. I have already emphasized that, altho the arteries in the kidneys usually are badly diseased, they may remain normal to the end. General arteriosclerosis is very common, but may be almost entirely absent. In one of our cases with extreme shrinkage of both kidneys the arteries in the kidneys were only slightly thickened and the arteries everywhere else were practically normal. There evidently never had been a continued rise in blood-pressure, because the autopsy revealed a small heart. In other similar cases without as much destruction of kidney tissue the blood-pressure was high and the heart distinctly hypertrophied.

Uremic symptoms both of the convulsive type and true uremia with retention of urea naturally are very common, but any, even the slightest uremic manifestations, may be absent for a long time. Then they may suddenly appear out of a clear sky. At the very end true uremia is the usual development, unless the patients die prematurely of infections, cerebral hemorrhage or other intercurrent conditions.

The appearance of albuminuric retinitis is just as capricious as that of the other "associated" conditions. In some patients it is an early symptom and the interference with vision brings the patient to the physician; others continue with normal vision and perfectly normal backgrounds to the very end.

Most of the patients exhibit a certain degree of secondary anemia and in some of them the blood condition is severe enough to be of considerable importance clinically, but among our patients there were a few whose hemoglobin percentage was constantly normal and who otherwise presented an entirely normal blood picture.

Death takes place in various ways: by apoplexy, decompensation of the heart, in uremic coma or as a result of intercurrent disease. Among the latter bronchopneumonia is the most frequent one.

In my last series of cases I was interested to find out how extensive the lesions in the kidneys must be, before the so-called "renal" symptoms would develop and which ones of these would be observed earliest. In this connection I wish to repeat that to my mind, none of these symptoms except hyposthenuria and true uremia depend directly on the renal lesions. That there is a fairly close association of some of the others with renal lesions cannot, of course, be denied.

The result of this investigation seemed to be that, so far as one could judge, at least one-half of the renal tissue had to be destroyed. In such cases of chronic cardiovascular disease with moderately severe renal involvement, as we might call them, the blood-pressure was higher and death took place earlier than in uncomplicated cases. The edema in these cases seemed to be more like that usually associated with chronic heart disease but puffiness of the face was well marked in at least one of our patients. What surprised me most was that three of the four cases which formed this group had retinal changes which the ophthalmologists had diagnosed as albuminuric retinitis. It remains to be determined whether the frequency of this lesion in such cases of our series was merely a matter of accident. The urinary changes were well marked in some, slight in others. They naturally depend more upon whether the renal lesions were active or quiescent, than upon their extent. This should be born in mind in the investigation of all cases of chronic nephritis.

One patient died of decompensation, one of apoplexy, one of bronchopneumonia in coma following violent delirium, probably due to arteriosclerotic brain lesions, and the last one from an acute exacerbation of the disease in the kidneys.

Cases of this kind often give rise to much divergence of opinion between clinician and pathologist, because to the pathologist the arterial lesions may seem to be the most important ones or again the lesions in the kidneys may attract his particular attention. His judgment in similar cases may vary from time to time. The clinician, on the other hand, has to be guided by the clinical manifestations and he will not always be ready to accept the judgment of the pathologist as to the relative importance of the vascular and of the renal lesions.

THE TREATMENT OF SARCOMATA WITH RADIUM AND REPORT OF CASES.*

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The treatment of malignancy in any form and by any of our older methods has been so unsatisfactory that any new methods which give promise of bettering our results deserve careful investigation. Within the last few years radium has been introduced and, due to its radioactivity, has had an apparent beneficial action on tumors of various kinds. It has attracted general attention because of its action on new growths, especially those of the malignant type. Radium has undergone the fate of many new remedies. There has been the initial period of extravagant claims which has been followed by the period of belittlement. In the last few years more careful and complete scientific investigations have been made and radium is now coming into its own. We are beginning to realize certain limitations in its use as well as some of the great possibilities of its future.

With increasing frequency articles are appearing in the various journals, reporting results of such a nature that we are justified in considering radium as the most wonderful and efficient agent that has seen introduced in recent years. It must be remembered and understood that its advocates do not insist upon nor advise the use of radium alone. It should be combined with x-ray as well as with surgery, these three agents being intelligently combined in the treatment of various pathologic conditions.

In studying the action of radium on various forms of malignancy we are fortunate in being able to produce both carcinoma and sarcoma in an experimental way. By means of Jensen's rat sarcoma and the Twort carcinoma, we can study both types whether grown on artificial media or grown by inoculation into mice or other animals. Radium has a very distinct action on the cells of a new growth, both as a destructive agent and as modifying the structure of the cell.

These conditions have been well worked out in these inoculated tumors occurring in mice and rats. The irradiations of these tumors in many cases result in their subsequent disappearance, and this destruction is apparently not due entirely to the proliferation of connective tissue cells but to the direct action of the rays upon the cells. It is very interesting to note that, if a tumor is removed and sufficiently irradiated and subsequently inoculated, it will not produce a tumor. This, apparently, is due to a direct action of the rays upon the structure of the cells. It has also been demonstrated that different results are obtained, depending upon the length of exposure to the radium. Inoculated matter which has received a short exposure will result in a tumor growth which is slower in its development than one which results from the untreated inoculation. A slightly longer exposure will result in a tumor which develops slowly for some days and is eventually absorbed by the animal, while a still longer treatment with the radium gives a result in which there is a rapid absorption of the transplanted material.

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These experiments have been well worked out in the Jensen's rat sarcoma both with the cells themselves and with an emulsion of the cells. An interesting thing has also developed with the Twort tumor. If irradiated cells are inoculated in mice, the animals become immune and, if these animals are inoculated some days later with a normal strain of tumor, there will be no development. This is of interest in growths in man. It is frequently observed in treatment of malignant growths with the insertion of needles that there is a subsequent disappearance of these growths, altho the radium has not been given in amounts sufficient to destroy all the malignant cells. The irradiated cells are destroyed and afterwards are absorbed, and it is a question whether this has not conferred such an immunity as to cause the absorption of the remaining cells. It has been noted histologically that tumors in the process of disappearance show a marked increase in the connective tissue growth, splitting the tumor into small islands with hemorrhage present in the cancerous cells.

In the human being the histologic changes following the application of radium have been fairly well worked out. Its general action is the same on all cells, but the more nearly the cell approaches the embryonic type, the more quickly it is affected. The cells of the child react more quickly than do those of an adult; the undifferientiated tissues of the body, such as the lymphoid cells and the Graafian follicles, succumb more quickly than do the surrounding tissue. This difference in reaction between the embryonic cells and the adult is considered to be in about the proportion of six or seven to one.

The changes resulting in the cells from the action of radium have been well outlined by Schmitz. These changes occur shortly after the beginning of a treatment. There is a serous infiltration of the tissues, together with an enlargement of the cell nucleus, with an increase in the size of the cell and a decrease of the size or a possible obliteration of the capillaries. This leads to a degeneration of the cell nucleus which is of an inflammatory type, with the reaction resulting in an infiltration of leucocytes and lymphocytes and a proliferation of the stroma. There is a great increase in the formation of young fibroblasts which gradually develop into connective tissue cells and fibers. There are occasional areas where the tumor breaks down and is soon covered with granulation tissue, healing with scar and often with epithelial tissue. At the time of the leucocytic infiltration there occurs a marked phagocytosis which assists in removing the debris. It is interesting to note that in these masses after the treatment there can still be found abnormal cells which show all degrees of degeneration, and that in these cells there is an absence of mitosis. Experimentally it has been found that cells of this type cannot reproduce a similiar growth when injected into mice.

In sarcomata the neuclei of the individual cells show a marked elongation and the presence of other degenerative changes. The cell protoplasm is replaced by connective tissue fibers, with a diminution or complete obliteration of the blood spaces. This condition continues until the growth is replaced by a connective tissue mass, which is usually so small as not to be noticeable.

Of all the forms of malignancy the sarcomata are the most readily affected with radium. If the treatment is given early, before the cells have been disseminated by the blood stream, the results are usually gratifying. It is necessary, however, to use very vigorous treatments. Needles may be introduced into the mass and very heavy doses given externally. The sarcomata of the tonsils and postnasal space and lymphosarcoma respond quite rapidly. This is also true in sarcoma of the periosteum. These masses sometimes disappear completely, and in other cases are replaced by dense fibrous tissues. A melenosarcoma does not respond so quickly and should only be treated if taken in the very early stages.

In the method of treatment there is still a diversion between the various people using radium. Personally I am more fully convinced that in the handling of malignancy the treatments should consist of radium therapy, combined with both surgery and x-ray as indicated. Surgery is always indicated where there is a possibility of a complete removal of all malignant tissues. Owing to the action of radium in obliterating blood vessels and lymph channels, it is frequently advisable to precede surgery by some radium applications. After the surgical treatment I think it should always be followed by the use of radium, combined if necessary with the therapeutic use of x-ray. In the x-ray treatment only the hardest and most penetrating rays should be used and a full therapeutic dose given. The question of the extent of radium treatment is also under discussion, as to whether it is necessary to produce a reaction or whether the treatment should be given without this. I am inclined to think that the same rule holds as in surgery. In treating malignancy in a surgical way the surgeon is successful who is the most radical and the most thoro in his dissections. So it seems to me that he will be the most successful in his treatment who uses heavy dosages and applies his radium most thoroly to surrounding tissues, and who uses every additional help that he can obtain.

I wish to report the following cases. The first is of particular interest because it shows the disappointment which one meets in the handling of these cases.

Case I. E. J. C., lumberman, was seen April 7, 1919. He had been operated on in January with a prompt recurrence. When seen at our office he had a sarcoma of the left parotid which was about the size of half an orange. The surface was ulcerated, with a foul gangrenous discharge. He was transferred to us because his condition was entirely inoperable.

Under treatment with radium alone there was a steady improvement until in July he was apparently healed, a slight amount if induration being left in front of the ear. This induration was due to the scar and had cleared up in August, when there was nothing remaining except a single straight scar. At this time the tissues were every soft and movable, and in every way there was an apparent complete recovery. He returned to work, and was seen from time to time until in December. During all this time there was no indication of any return at the original site of trouble. In December he was taken ill with very severe headaches and diagnosis was made of secondary tumor of the brain. He was operated on and a decompression operation was done but no secondary growth was found. He died a few days later and autopsy showed a metastasis involving the cerebellum.

This illustrates a very interesting condition, where the therapeutic results of the radium were all that could be asked, but where a metastasis occurred with death to the patient.

Case 2. C. E. D., rancher, living at Selah, Wash., was operated on for a sarcoma of the neck, and was referred to us for recurrence. He had two ulcers, one above the right clavicle and the other below. The upper one was the size of a half dollar, the one below twice as large. This man under treatment showed a continuous recovery, and was discharged from treatment in December of the same year with the ulcers healed. He has been seen frequently and a recent letter states that he is entirely healed.

Case 3. Mrs. J. F. M., housewife. Treatment began in April, 1919, for a recurrent sarcoma of the shoulder. She had an unhealed ulcer about an inch in length by seven-eigths of an inch in width. She made a steady recovery, the ulcer being healed in August. She has been seen several times since with no sign of recurrence.

Case 4. Mrs. F. E. D., housewife, Portland, Ore., was admitted for treatment Nov. 12, 1919. She had an operation twelve years ago with pelvic drainage of both tubes. Two years ago a partial hysterectomy for uterine fibroids. Fourteen months ago she began to have considerable pelvic pains and later noticed a mass in the lower abdomen.

Examination on admission showed a large mass extending to the navel, most pronounced on the right. On pelvic examination the mass seemed to spring from the left ovary with the cervix twisted to the right. She was operated on Nov. 14, the mass being found to be a large cyst, springing from the left ligament. There was a dense mass of adhesions between the tumor and the surrounding tissues. It was all removed with great difficulty excepting at the insertion of the broad ligament. The adhesions were so severe, due to the former pus tubes, that all we could do was to tie off the mass. A tube of radium was inserted and the abominal incision closed. A pathologic diagnosis was made of a mixed-cell sarcoma. She received radium treatments thru the months of November and December and had one deep x-ray treatment.

She returned in April, 1920, and showed no signs of recurrence or of any secondary trouble. Her condition at the present time is very good, there being no sign whatever of any recurrence.

Case 5. Mrs. J. D. W., Yakima, was admitted in Jan. 1920. She had been operated on two weeks before. The surgeon found an inoperable sarcoma, involving both tubes and ovaries, a large retroperitoneal mass with a mass in the intestines and an involvement of the peritoneal glands. No attempt was made to remove the growth. Pathologic examination showed a round-cell sarcoma. On examination by the vagina a large, hard nodular mass could be felt filling the entire pelvis, with considerable hemorrhage from the uterine canal.

She received radium treatments during the month of January and one massive x-ray treatment. She returned to her home in the latter part of January and then returned for examination later in March. At this time she still had a great deal of induration and her general condition was very poor. She received two heavy radium treatments and one x-ray and was again allowed to return home. She has been back a number of times for observation, the last time being two weeks ago. There has been a constant improvement, tho there is still a slight induration remaining in the ligament, but the uterus is movable and the induration itself is very slight.

Case 6. J. F., child two and one-half years old, Wenatchee, admitted Jan. 30, 1920. Child was perfectly well until about a month ago, when she was apparently in pain and kept putting her hand to her side. Later parents noticed a lump in the appendiceal region and took her to a surgeon who operated Jan. 7. He found a mass involving the mesentery of the ileum, the cecum and appendix which he felt was not operable. He did not remove any tissue for pathologic examination but made clinical diagnosis of sarcoma.

On examination at our office a mass could be felt involving the entire lower right quadrant, nodular and quite hard. She received a series of treatments, the last being on Feb. 17. On the 23rd an examination failed to reveal any induration. She returned to her home in Wenatchee and came to us on March 29 for examination. No hardness or induration could be felt. Her parents say that she is entirely well so far as symptoms are concerned. She plays with her brothers and sisters and shows no signs of ever having been ill. She returned in July and again in September for examination and no mass could be felt either time. The child is healthy, has been increasing in weight and no evidence of the old trouble can be detected. The abdomen is soft, with no rigidity and no indications of any trouble.

Case 7. Mrs. G. H. D., age 48, married, housewife. First noticed trouble in neck with enlargement of thyroid gland which was operated on in Canada two years ago and the gland removed. Following this operation she had constant hemorrhage of a very severe type and a second operation done to control the hemorrhage was ineffectual. She came to the States and was treated by a Seattle surgeon who injected hot water which controlled the hemorrhage for about a year, since which time the bleeding has recurred.

When seen by myself she had a marked enlargement of the thyroid gland, particularly on the left side, nodular, with a sinus thru the center of the original incision, from which there was a profuse bloody discharge. She received her first treatment in Oct., 1920. On Nov. 5, she came to the office with a temperature 103°, pulse running 140. The neck was badly swollen and she was referred to her surgeon who opened a large abscess which discharged an exceedingly foul smelling pus. She coughed up large amounts of black blood and it was evidently due to an ulceration into the esophagus. This was later confirmed on radiographic examination. She was in the hospital about three weeks, when she came to the office with this sinus discharging freely. On Nov. 21 her radium treatments were resumed and continued during December. During this time there was a constant and steady improvement. The size of the gland diminished and the sinus closed.

She has been under constant observation since then and at this time the gland is normal in size, soft with no evidence of any induration and no nodular feel; the sinus remains healed. A pathologic diagnosis was made of this tissue at the first operation in Seattle and a report was made of sarcoma.

Case 8. W. T., lumberman, 33, seen at our office July 7, 1920. In December, 1919, he noticed a fulness in his throat on the left side and saw a doctor in Port Townsend who removed the left tonsil and two glands in the neck. About two months later a mass reappeared and at this time was firmly attached to the angle of the jaw. He saw a surgeon in Seattle who again removed the tonsil and at this time it recurred very rapidly. He was again operated on with an attempt to remove the mass. The tumor was so extensive, involving the deep muscles of the throat, that it could not be removed. A bit of tissue was sent to a pathologist who returned a diagnosis of lymphosarcoma.

Examination on admission showed a soft ulcerating mass, the size of a walnut, pressing into the left tonsillar space. There was a fresh incision under the left ear, with the surrounding tissue swollen and edematous. He received his first treatment in July, 1920. Under the treatment with radium there was a slow gradual clearing up of the mass both in the throat and in the neck, until in November, 1920, the tissues felt entirely normal. There was no evidence of any mass in the throat and no hardness or induration felt in the neck. This man has been seen at intervals since then and as far as can be seen at this time he shows a complete recovery.

Case 9. V. M., baby girl. She was admitted to our office Oct., 1919. She had from birth an angioma on the outer side of the right thigh, lower third. It began ulcerating two weeks before. Examination on admission showed an angioma, involving the outer aspect of the thigh with the center broken down and ulcerating.

No pathologic diagnosis was made in this case but a clinical diagnosis was made of angiosarcoma. She received treatments during the month of October and one treatment in November, with a constant steady improvement and on Nov. 6 the ulcer was entirely healed, and the angioma had disappeared. This child has been seen since and to the present time there has been no recurrence.

Case 10. J. L. B., mechanic, 24. Was referred to us on Jan. 26, 1920. He gave a history of having had trouble with the right antrum for three years and was under treatment while in the army. About three or four months ago the jaw began to swell, there was some pain at the onset of the trouble but not at the time of examination. He states that the swelling first appeared under the right eye and gradually extended to the jaw. On examination there was a large tumor about the size of a small orange, involving the angle and the ascending ramus of the inferior maxilla. The radiograph shows a very extensive involvement of the bone. The mass was very large and he was referred back to his surgeon for a resection of the lower jaw, which was done.

Treatments were resumed in February, under which he made a steady improvement with the exception of a superficial infection, involving the subcutaneoous tissues above the right eye. There were some sinuses persisting in the wound which gradually healed. He was in fine shape and returned to work in the latter part of June, 1920. He has been under observation ever since and so far as can be determined he is entirely recovered.

I am reporting these cases, not as having been cured, because I realize a sufficient length of time has not yet elapsed to place them in this class. With two exceptions a pathologic diagnosis was made and with one exception these cases were inoperable or had recurred after operation. In this case, if it had not been for the radium which was used at the time of operation, there would have been an unquestionable recurrence, as there was no possibility of removing the entire growth. I present these cases as a matter of interest because of the great improvement which has resulted from the radium treatments and which could not have been obtained in any other way. I am hoping later to be able to report to you on the ultimate outcome in each of them.

THE CAUSES AND RESULTS OF DEFLECTION OF THE NASAL SEPTUM.*

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The nasal septum is located between the frontal and ethmoidal bones above the sphenoid behind, and the superior maxillary and palate bones below. The frontal and ethmoidal bones form the roof of the nasal cavity, while the hard palate forms the floor. Between these boundaries the septum develops and is subject to pressure from above or below due to various causes, and somewhat open to violence in front. Two bones and a cartilaginous plate make up the bulk of the septum, together with their coverings, blood vessels and nerves. The vertical plate of the ethmoid forms the superior third, the vomer, the inferior and inferior-posterior portion, and the quadrilateral cartilage fills in the gap between the two bones and extends forward, projecting somewhat thru the opening between the nasal bones above and the nasal spine of the superior maxillary below. The nasal spine of the frontal bone, together with the rostrum of the sphenoid and the crests of the nasal, maxillary and palate bones, serve as articulating points for the vertical plate of the ethmoid, the vomer and quadrilateral cartilage.

So it may be seen how fixed the nasal septum must be in its bony cavity, and how wonderfully well protected it is from violence of every sort. But in spite of all this we find deflections of the septum due to trauma at all ages, altho this must be rare, as the nasal and superior maxillary bones protect the bony part of the septum and partly protect the cartilaginous part.

During fetal life and during infancy and early childhood the nasal septum is usually symmetrical and in the mid-sagittal plane, altho there are some exceptions. The vertical plate of the ethmoid has one or two centers of ossification, which appear during the first year of life and develop slowly, so that during the months when the child is learning to walk, the nasal septum is very pliable, and many blows are received thru falls and bumps which often are the means of a deflected septum. This may not show until later in life. In after years, when the vertical plate of the ethmoid has become fully ossified, the cartilage is deformed by trauma more often than the bony part. But blows that are hard enough give the deviated septum type of broken nose.

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Ossification of the vomer begins at the sixth or eighth week of fetal life. At this time it consists of two separate plates with a layer of cartilage between them. This cartilage is prolonged forward and forms the quadrilateral septal cartilage. At three years of age the two plates of the vomer begin to coalesce; the process starts in the posterior part and continues forward; ossification is not complete until after puberty. Dr. Sir St. Clair Thomas, of London, believes that a deformity of the septum may result from an uneven development of the two plates of the vomer, one being more greatly developed than the other. And, as the coalescing of the plates begins in the posterior part, it accounts for the fact that deflections of the posterior part of the septum are practically never found.

After making a study of many patients of various ages with deformed septa, and after reviewing the literature in which a great many of our best men of the past and present have written their opinions as to the etiology of deflected septa, one fact is evident, that the causes of deflected septa are many and belong to one of two influences, traumatic or developmental. The older authorities seem to believe that the majority of cases were caused by trauma, but our more recent investigators have given us data that proves that the majority of deviations are from a developmental cause, depending upon pressure at the roof or floor of the nasal cavities, due to uneven over- or underdevelopment of the surrounding parts. In my experience I see about three deviated septa from a developmental cause to one from trauma.

It is surprising to see what a high percentage of the human race is afflicted with deflected septum. Dr. Wendell C. Phillips, of New York, states that 76 per cent of all adults have deflected nasal septa, and toward the left more frequently than the right. Morell Mackenzie examined 2152 skulls in the Museum of the Royal College of Surgeons and found deformity of the bony septum in 1657 or about 75 per cent. Zuckerkandl examined 263 European skulls and found about the same percentage, while Spiess found only 24 out of 92 deformed nasal septa in non-European skulls.

A deviated septum in early childhood is rare. Zuckerkandl states that the septum is not found deviated before the seventh year; but Bishop, of Chicago, reports a boy five years and nine months old with deflection of the septum, spurs on both sides, and hypertrophied turbinals, together with large adenoids. Kafemann examined 1100 school boys under fifteen years of age and found 84 cartilaginous septal deformities, and 161 with both bony and cartilaginous deformities. He also examined 1102 girls not over fifteen years old and found 50 deformities of the cartilaginous septum, and 128 with both bony and cartilaginous deformities. Frankenburger found that 9 per cent of school children at six years of age had a deviated septum, and at seventeen years 17.5 per cent, and that the deformity increased at the rate of 1 per cent for each year of age thereafter.

It is interesting to note how the percentage of deformed nasal septa varies in the different races. The Mongols, Africans and Polynesians are found to have straight nasal septa in all but 20 per cent. The Hebrew, Slav and ancient Romans are very prone to deformity of the nasal septum. Delavan thinks it is due to the aquiline type of nose, but the North American Indian seems to be an exception, as a septal deformity is rarely found among them. It seems that the Indian mothers encourage nasal breathing from early childhood and this no doubt accounts for their freedom from this deformity.

Septal deformities are more common among males than females; this is thought to be due to the greater amount of exposure of the male. Dr. Sir Thomas states that septal deformities are very common among those suffering from the strumous, syphilitic, tuberculous or rachitic diathesis. He also quotes Harrison Allen as pointing out the influence of cretinism as a predisposing cause of deformed septum.

When considering the influence of the development of the framework of the face immediately surrounding or forming part of the nasal cavities on the septum, we see that the position and shape of the hard palate is responsible for a large percentage of the deflections. The gothic arch is naturally present in infants, and it is reasonable to believe that, if it is not developed, it will remain a gothic arch, with its effect on the development of the nasal septum. Freeman shows that out of 302 cases of high-arched palates 290, or 96 per cent had deviated septa.

There are several influences which affect the development of the palate. Mouth breathing due to adenoids in the vault of the pharynx will produce an abnormally high-arched palate, which in turn presses upon the nasal septum from below, causing it to become deflected. Another process which affects its development is the cutting and regularity of the teeth at that age, when growth and pressure influence are so necessary to change the normal gothic arch of the infant into a broader and flatter palate. If the teeth, especially the primary teeth, thru any influence come in irregularly, or are lost too early or too late, the result is a loss of the wedging effect on the arch, brought about by the cutting of the second set of teeth. This not only affects the dental arches and palate, but the development of the bones which go to make up the face.

An unbalanced development of the skeleton of the nose and face accounts for many deflected septa of the nose. Dr. Joseph Head in his book on modern dentistry states he has proven by means of expansion arches in children that the face develops to the teeth, not the teeth to the face, that, if the teeth are placed in perfect occluding arches during the developmental period, there will be a corresponding development in the formation of the profile and face generally. Unfortunately a perfectly normal human denture is rarely found. Of course, if we find normal conditions for growth and development of teeth, jaws, bones of the face, throat, nose and muscles, we are sure to find a normal denture. It seems that one condition is quite dependent on another, causing a sort of vicious circle. The condition of the teeth may cause a deflected septum, and the obstruction to respiration caused by the deflected septum may make the condition of the teeth worse.

Dr. Edward Kirk states in his text book of operative dentistry, that abnormal enlargement of the faucial tonsils is the principal cause in producing malocclusion, by seeming to provoke a desire on the part of the child to habitually shove the lower jaw forward until mallocking of the cusps of the molars is brought about.

The development of the lateral halves of the dental arches is produced largely by the development and eruption of the permanent molars, back of the deciduous molars. When the primary teeth are not impaired by caries, but remain the normal length of time, the first permanent molar must take its position in the arch by forcing a place between the second deciduous molar and the maxillary tuberosity above, and the ramus of the jaw below. But if for any reason this deciduous molar is prematurely lost, the permanent molar grows into its place, thus not contributing in the development of the jaw.

Irregularities may occur, by there being a premature loss of a deciduous molar on one side and a normal condition on the other; thus producing a malshaped arch and jaw with malocculsion. This may occur above only, or below only, or it may occur on one side above and the opposite side below. Should this loss of development be brought about, another evil will follow, the space left by the premature loss of the ciduous molar having been filled by the permanent molar. The eruption of the next permanent tooth (the second molar) will be prevented entirely or forced out of line to the buccal or lingual side. One can readily see how development is retarded, as a jaw in this condition has not had the advantage of the usual pressure to aid in the expansion necessary for the growth of the arch. If this condition occurs on all sides a narrow jaw will result.

The lack of development, caused by a premature loss of deciduous molars, is also found when there is a premature loss of any of the deciduous teeth, the molars and canines in either arch having the most influence. A prolonged retention of a deciduous tooth will either prevent the succeeding tooth from eruption or throw it out of line, thus interfering with development and producing malocclusion. If one or more permanent teeth anterior to the erupting molars be extracted, the wedging process, so necessary in developing the arch, is lost, and the process serves only to close the space thus made, and there will be no carrying forward of the teeth and processes, and unequal development of the two arches will follow.

Another cause of malocclusion is malnutrition, which may be due to underfeeding, improper feeding, measles, scarlet fever or any of the children's diseases. These tooth conditions which interfere with the normal development cause a peaked or high-arched palate. As the arch remains high, the septum of the nose, as it develops, must bend to make room for its growth. This cause of nasal septal deviation is rather a common one and, with our modern methods of dentistry perfected as they are today, can not only be prevented but to a great extent cured when attended to early enough in life.

There are developmental causes which are brought about by pressure from above upon the roof of the nasal chambers. These are largely a product of ultracivilization, as confirmed by

Zuckerkandl from his studies of many skulls representing the different types and degrees of civilization. Dr. J. Parsons Schaeffer, Professor of anatomy at Jefferson Medical College, Philadelphia, made an examination of a mixed series of skulls with the result that he found the greatest percentage of septal deviations in skulls of Europeans. He divides the skull of man as in mammals into two parts, the facial part and the brain capsule. The brain capsule develops in accordance with the size of the brain. The development of the brain capsule or cranium encroaches upon the face, so that the larger the brain the smaller the face, and the less does the face project in front of the skull; and the smaller the brain, the larger the face, with greater projection in front of the skull. The facial projection is known as the facial angle, which is almost always an index of the development of the brain. The facial angle is smallest in the highly civilized, much greater in the lower races and greatest in the lower animals. This explains in a measure the reason why deflected septa are so commonly found in the ultracivilized, and not found in animals and savages, and rarely found in the semicivilized, except from traumatism. The nasal septum is apparently encroached upon by the forward extension of the cranium, incident to brain development.

I find in looking over literature on this subject that various other causes of deflected septa are given. O. B. Douglas believes that trauma is a more frequent cause than all others combined and states that pressure at birth is no doubt a cause in certain cases. Wilkes has shown that in those cases, in which one maxillary bone descends and the other remains high-arched in the process of development, convexity of the septum is toward the descending maxilla. Heredity plays little influence in bringing about a deflected septum, as it is the condition affecting the development after birth that affects the shape of the septum.

According to Ballenger, it is almost a constant rule that, when the septal deflection is such that a vertical section shows an S-shaped septum, the cause of deflection was developmental; but, if a horizontal section shows an S-shaped septum, the deflection is of traumatic origin.

The results following a deflection of the nasal septum are due to obstruction or pressure, the symptoms being dependent upon the kind, degree and location of deflection and the amount of room in the nasal cavities. There may be absolutely no symptoms, or the results may be so serious as to endanger life. A septum may be considerably deflected in a broad nose with little or no results, while a much less degree of deflection in a narrow nose will bring the patient to the office complaining of a variety of symptoms.

The location of the deflection in the septum makes a great difference as to the symptoms that follow. If the deflection is in the anterior part of the cartilage and low down, the result is not as serious as tho it were further back and higher up; the only symptom would be obstruction to respiration on one side. But if the deviation is in the neighborhood of the middle turbinal bone, there will be not only obstruction to respiration, but to drainage also. The sinuses having their ostia under the middle turbinal will be more or less blocked, from which serious results may follow. A perpendicular deflection is not apt to be nearly as serious as a horizontal one, as it allows drainage of the nasal cavity and its accessory sinuses. This type is usually found in the anterior part of the quadrilateral cartilage and is of traumatic origin.

I find that Ballenger gives the best description of the different types of deflected septa, of any of the authorities writing on this subject. He divides deflections of the bony part of the septum into three: first, a ridge along the upper border of the vomer and crista nasalis, running from before backward and some what upward; second, a bending of the perpendicular plate of the ethmoid so as to press against the middle turbinal; and, third, a combination of the first two.

Interference with the free drainage of any of the mucous membrane lined cavities having an outlet is inevitably followed by infection and inflammation. For example cystitis, following enlarged prostate; dacryocystitis, following occlusion of the nasal duct; cholecystitis following interference with drainage of the gall-bladder; otitis media, following obstructed eustachian tube. The same condition follows when an accessory nasal sinus is obstructed; a sinusitis follows.

Among the complaints made by those with a deflected septum is a sense of pressure thru the bridge of the nose between the eyes; a frontal headache, most severe in the morning, differing from an eye headache which usually comes on at night and is gone in the morning; vertigo, which is aggravated by jarring the body or by stooping forward or, after stooping, rising up again. Vertigo from eye strain is usually relieved by closing the eyes, while this type of vertigo continues after closing the eyes. Asthma is often of reflex nasal origin, being caused by pressure of a deflected septum in the region of the middle turbinal.

Nasal polypi are common in these cases. Nasal discharge is either forward or backward; if forward, often producing herpes at the margin of the nares and sometimes on the upper lip; if backward, often irritating the pharynx, fauces and tonsils, and by a constant clearing of the throat irritating the larynx. The discharge may be thin and watery, or, when the obstruction is greater, may be thicker and mucoid. The thicker it is the more irritating it will be found to be. Sometimes the complaint is inability to breath freely thru the nose, compelling the individual to breath thru the mouth, with all the sequelae that follow mouth breathing. The efforts to inspire thru an obstructed nose rarefies the air in the nose and pharynx posterior to the point of obstruction. This causes a congestion of the nasal cavities, especially the turbinals, particularly the middle turbinals. A continuation of this congestion produces an inflammation and finally an hypertrophy of the turbinals. This condition makes obstruction worse.

Hemorrhage is a frequent complaint, the bleeding point being usually from the summit of the convexity of the deflected septum. Friction of air passing in and out of the obstructed nostril will often bring about this hemorrhage. Removal of crusts adhering to the mucous membrane by blowing the nose or with the finger nail is a frequent cause of hemorrhage.

When the septal deflection is great enough, an external deformity of the nose is often found. Ridges, crests and spurs are part of septal deflections. A voice with a nasal twang is not uncommon following septal deformity. Anosmia, or loss of sense of smell, is not an uncommon complaint.

Acute or chronic suppuration of the different sinuses or an acute or chronic suppurative pansinusitis present certain symptoms. These may be neuralgia, face ache, chills and fever, nausea and a general aching of the whole body. The acute pain of acute or chronic frontal sinusitis needs no description. Congestion of the frontal sinus or the sun pain described by our grandmothers, or the vacuum headache described by Dr. Sluder, of St. Louis, are not uncommon. During an empyema of any of the sinuses, pus may break thru the thin walls and enter the neighboring cavities, causing very serious trouble; an orbital celulitis or a meningitis may follow; or in case it should be the ethmoidal sinus there may be complaint of pain in the forehead, occiput, temples, ears or deeply behind the eyes; lachrymation, photophobia, blepharospasm, transitory scotoma, retrobulbar neuritis with complete blindness, thrombosis of the cavernous sinus or basal meningitis.

The condition brought about by a deflected septum of the nose is no doubt a predisposing factor in the etiology of hay-fever and influenza; and it is thought by Flexner and others that the nose may be a point of entrance for the poison causing lethargic encephalitis and also poliomyelitis, when it is in a state of low resistance, which a deflection of the septum may cause. A deflected nasal septum brings about a condition in the nose or nasal accesory sinuses, from which septic material may be absorbed. In fact, a point of focal infection is established which may be the cause of any of the troubles found in the human body brought about by infection carried by the blood or lymph stream. Among these are rheumatism, arthritis, endocarditis, nephritis, neuralgia, neuritis, appendicitis, cholecystitis periostitis, osteomyelitis, tonsillitis, pharyngitis, laryngitis, cystitis, prostatitis and any of the rest of the itises. A rise in blood pressure is not uncommon, and so there is no end to the many results brought about by a deflected nasal septum.

One more condition which should not be overlooked. I refer to the effect on the hearing. Many patients come into the office complaining of deafness in one or both ears of variable degrees, whose difficulty is located as being due to a closure of the eustachian tubes. A deflected septum causing a rarification of the air posterior to the point of obstruction will in time collapse the eustachian tubes, and after this closure becomes permanent the hearing begins to be affected. This discharge that usually accompanies a deflected septum is often forced into the eustachian tubes with its detrimental effect on the hearing. The inflammatory process found in a nasal cavity obstructed by a deflected septum often travels by continuity into the ear tubes. If an acute process of infection enters the eustachian tubes, an otitis media or middle ear abscess may follow.

The human anatomy of the nose has reached a point in its evolution up the scale from the lower types that will not allow much of any change from what we call the normal without bringing about a perverted function. For example, the nasal sinuses in man are the residual olfactory organs. In the primeval state a very acute sense of smell was necessary, as it is in some of the lower animals, to help us find food, scent our enemy and so on. In the process of evolution the large distribution of the olfactory nerve has become less and less necessary, hence the sinuses have been gradually closed off from the nasal chambers, until only small openings are present in man. An inflammation of the lining mucous membrane of the walled-off sinuses, therefore, becomes a frequent pathologic process. If the sinuses were open more to drainage and ventilation, inflammation would be less frequent. Now let the nasal septum obstruct what drainage the sinuses have, and it is apparent how readily a sinusitis develops.

The importance of having a straight nasal septum has been appreciated by modern nose and throat men, and also by the army. Captain Stivers states that, during the campaign in Los Angeles in which candidates were examined for aviation for the late war, 5.75 per cent were operated upon for a deviated septum. The government has decided that no man with obstructed nasal respiration can answer the requirements for flying. And, as nasal breathing is very necessary for long tramps and to endure the kind of life found in the army in general, the government requires correction of deflected nasal septa in all cases where respiration is obstructed. Much attention is being attracted to this important subject not only by the government but by schools, factories, mills, mines, etc., and the time is close at hand when an examination of the nose to determine the condition of the septum will be a part of all physical examinations, and, whenever a deflected nasal septum is found which belongs to the type which produces future trouble, it will be corrected.

Needed Measures for Prevention of Deafness During Early Life. There are more deaf adults in the United States than there should be according to Harold M. Hays, New York (Journal A. M. A., July 23, 1921), because the moderate defect in hearing in childhood is not properly taken care of; and the problem of the prevention of deafness can be handled intelligently only by a precise cooperation between the parent, the educator and the physician. Plans for the prevention of deafness are outlined.

THE CLINICAL INTERPRETATION OF THE WASSERMANN TEST.*

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No test occasions more controversy and disagreement between clinical and laboratory worker than the Wassermann. This disagreement, I believe, is based upon genuine difficulties on both sides. On the one hand, clinicians are agreed that many late manifestations of syphilis may tax one's diagnostic ability to the utmost; on the other hand, laboratory workers find that the Wassermann test exacts the maximum of technical precision, and constant watching and testing the reagents employed. It is not intended here to enter into detail regarding various technical difficulties of either clinical or laboratory worker but rather to examine and discuss the nature of some differences which have occasioned actual controversy in my own experience both as laboratory and clinical worker. Most difficulties, I know, are susceptible of logical explanation.

When, for instance, the clinician receives a report of a positive reaction in a case in which there is neither history, symptoms nor signs that he can interpret as syphilis, he is at once presented with a problem for careful consideration. Reexamination of the patient may, indeed, throw no further light upon the case, the solution of which must of necessity be one of the following:

(1) That the patient has not syphilis and the laboratory report is misleading.

(2) That the patient has syphilis without symptoms or signs that he has been able to interpret as such and the laboratory report is correct.

It is necessary first of all to get the respective view points of the laboratory worker and clinican, each in his special field of work. The laboratory worker, let us say, has carried out with care and precision the test of the unknown specimen of blood or spinal fluid. He has been careful to make preliminary titration of those reagents which give the naked-eye evidence as to whether complement has or has not been absorbed, fixed or deviated by certain antilipordal substances in the patient's blood or spinal fluid. In other words he has, in preparation for the actual test to be carried out, adjusted the hemolytic system; also, by frequent titrations and previous tests he has assured himself that the antigen he uses is both sensitive and free from certain undesirable qualities.

Furthemore, he controls the series of tests to be made by placing in that series the sera from known positive and known negative cases, and finally he has made sure that the control tube for each test works out as expected. In short, the attitude of the laboratory worker will be that the blood which he finds positive contains an antilipordal substance, which, in the great majority of cases, owes its presence to syphilis, or very rarely to some one of those diseases which may produce the same or a closely related antilipordal substance, such as advanced tuberculosis, leprosy, yaws, some metallic poisons, etc. It is claimed, indeed, that occasionally a patient's blood may react weakly positive where none of these diseases are present, just as a positive widal test occasionally occurs where typhoid has never existed. Such cases, of course, must be exceedingly rare. One other condition the laboratory worker will remember, which is that a slight inhibition of hemolysis occasionally occurs with a very sensitive cholesterinized antigen.

For the clinician, the problem in a case unexpectedly yielding a positive Wassermann test is difficult indeed. It is in just such a predicament that he may throw caution aside and disregard the laboratory report, only to find later on that he has been wrong. A case of this kind may be cited as an example.

A. D., a soldier, presented classical signs and symptoms of tuberculosis of the right testis and epidymis. He also had a healed tuberculosis lesion in one lung, which was confirmed by x-ray. Removal of the diseased testis was decided upon but as a part of the hospital routine a blood test was made. A two plus positive was reported, and three days later another blood test confirmed the first report. I suggested vigorous antisyphilitic treatment as a therapeutic test. The surgeons, however, were too positive of the clinical findings to give the laboratory any considerations. In record time, one may say, they sent down to the laboratory what proved to be a perfect museum specimen of syphilitic testis and epididymis.

It is, I know, unfortunately the experience of the clinicians sometimes to receive contradictory reports from two or more laboratories on the same specimen of blood. This is readily understood by the laboratory worker, for he knows that fautly technic or faulty reagents may occasion this. Much the commonest cause of these divergent reports is, I am sure, a weak or insensitve antigen, yielding false negative reports. More rarely an antigen deteriorates to a point where it develops anticomplementary qualities, that is to say, it will bind complement in the presence of a non-syphilitic serum, yielding thereby a false positive. Antigenic deterioration may set in suddenly, so that many serologists, as a precaution, employ two or more antigens in each test series. This assures an efficient control of one antigen by one or more others. Moreover, since different laboratories use their own antigens and such antigens must necessarily vary in sensitivesness and strength, so will the reports of different laboratories vary. If it were possible for all laboratories to use the same standard antigen I am sure there would be fewer discrepencies in the reports.

The difficulties of the clinician are particularly great, where there are no clearly marked symptoms or signs and the Wassermann reaction is negative or very weak. In the latter case a provocative test may yield a stronger reaction and thereby give him more help, as, for instance, wherein early aortic or heart lesion is suspected. These late manifestations of syphilis commonly give a negative or weak positive reaction.

Regarding central nervous system syphilis, it seems that the lymphatic circulation is more or less a thing apart from the systemic circulation, inasmuch as a strongly reacting spinal fluid is often present when the blood is negative, and even when the blood is negative, following a provocative dose or arsenobenzol. This fact constitutes a further difficulty for the clinician. The following case is cited to illustrate this point.

Mrs. M., age 38, began to lose her vision in the left eye eight years ago, and this eye became totally blind three years ago. Shortly afterwards the right eye began to show a similar neuroretinitis and vision now is seriously impaired. The blood Wassermann test and a provocation test following both proved negative. The spinal fluid showed a two plus positive with increase of mononuclears and gobulin content.

Undoubtedly examination of the cerebrospinal fluid is always indicated, where nerve lesions of suspicious character are present. The following case shows how failure to do this may lead one astray.

Mrs A., was seen by an ophthalmologist who found she had retinitis in the right eye, an early lesion. She was referred for examination and physical examination was totally negative. The first blood test and the provocative were also negative.

A lumber puncture was not done, unfortunately. Some weeks later the ophthalmologist wrote me, saying that the retinitis had cleared up nicely under iododes and mercury.

Yet another case illustrating the isolation of the nervous system from the systemic is this.

Mr. C., age 57, was treated for syphilis thirty years ago. Since then he has shown no symptoms until recently when suddenly, following a drinking bout, he lost control of his bladder. There was incontinence of overflow, a catheter bringing away two quarts. There was no obstruction in urethra or prostate, so that the bladder had simply lost its tone and distended enormously. For several days thereafter a catheter had to be used. Physical examination showed no other sign than markedly increased knee jerks. The puncture gave clear fluid under such pressure that it spurted out. This fluid reacted two plus positive, gave sixty mononuclears and an increased globulin content. After the first intravenous of arseno-benzol there was marked improvement, tho it is not certain that this alone was responsible for the improvement.

It seems reasonable, however, to regard this condition as a focal syphilitic lesion in the lower part of the cord, involving the bladder center. Such cases as these serve to illustrate the difficulties of the clinicians, where the blood reacts negatively.

More difficult still is the case giving a weak positive Wassermann but no history, sign or symptom even after repeated examination. It is fair to conclude that the Wassermann report must be at fault or are we to regard a positive report as a positive sign of syphilis. This case is given to bring out this point.

Mrs V., age 38, has always been in most excellent health. She was an only child and both parents died years ago, the cause of death being unknown to her. She herself has no stigmata of syphilis. Recently she developed an acute iritis which the ophthalmologist regarding as secondary to badly dental roots in the upper jaw. A blood Wassermann was a weak one plus. The husband's blood was negative. A provocative test of the patients blood now gave a two plus; and antisyphilitic treatments quickly cured the iritis. Finally, the patient's step-father revealed the fact that the patient's father had died of syphilis. Her mother had also had it and had even warned the step-father always to be on the lookout for syphilis appearing in the child.

Let us stop to consider what our attitude might have been, had this patient come to a doctor for some trivial condition such as an acute coryza, let us say, one week before onset of the iritis. I venture to say that the majority of us would have ignored the weak one plus Wassermann. In another case Mr. H., age 29, had had iritis and retinitis for over six months and was progressing steadily towards blindness. Four separate Wassermann tests made by two laboratories were negative. My first test was hardly a one plus positive; a provocative test, however, gave a three plus. Had this patient been seen for something less serious than retinitis, surely the negative reports would have been misleading at a time when the patient actually did have syphilis.

The chief difficulty for the clinician undoubtedly lies in negative or weak positive reactions. A negative reaction is not by any means proof that a patient is free from syphilis. A weak positive is, indeed, a very definite and important sign that syphilis is probably present and discoverable upon further examination. Syphilis in full play in the secondary stage is wide-spread and yields a uniformly strong positive reaction, while syphilis latent and lurking in the tertiary stage is circumscribed, focal, often difficult to detect and commonly yields a negative or weak positive reaction. The older the case, the more difficult often is diagnosis for the clinician. In just such cases is the laboratory report of a weak positive reaction likely to be of the greatest help to him, for the test, when carefully executed under exact conditions which I have indicated, is in the vast majority of cases reliable.

I am convinced that the actual diagnosis of syphilis rests entirely with the clinician. He must regard the Wassermann test simply as a valuable instrument of precision, even as he regards his stethoscope. The stethoscope may fail to detect an early lung lesion because the signs are too faint. So, too, the Wassermann test may fail to detect very small amounts of antilipordal substance. Each is an instrument, a valuable instrument of precision, and the positive reaction of the Wassermann test is no less a trust-worthy sign of disease than that which may be found by the stethoscope.

Defective Diet As A Cause Of Sterility. Edward Reynolds and Donald Macomber, Boston (Journal A. M. A., July 16, 1921) subjected rats to three deprivation diets, one of which was low in the fat soluble vitamin, one was low in calcium and the third low in proteins. All these diets were given in unlimited quantity and were ample and similar in all other respects. These deficiencies were chosen as being those which are most often present in persons belonging to the well-fed clases in the United States. To them they added a fourth diet which was deficient in both calcium and proteins.

SALVARSAN IN THE TREATMENT OF GENERAL PARESIS.

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When salvarsan first came into general use, great results were expected from it in the treatment of the late manifestations of syphilis. It has been our experience, however, that in the treatment of paresis, at least, we had not found a drug that was a curative, altho in a few cases it seemed to be of temporary benefit. Then came the interspinal injections of salvarsanized serum by the Swift-Ellis method, which we tried out on a series of forty cases of paresis. Our experience corroborated that of others, that it did no good and was not without danger.

We have for a number of years given salvarsan to selected cases with varying results, but not until after the war did we give it as a routine treatment in all cases of syphilis, in which there were no counterindications and if there seemed any chance to aid the sufferer. We had splendid results in some cases of cerebral syphilis, but the results in our cases of paresis were not very encouraging. I wish to mention these cases in particular.

During 1919 and 1920 we treated 114 cases of paresis, some with salvarsan and mercury and others with salvarsan alone. The fact that they did or did not have mercury does not seem to have made a great deal of difference. Each patient received from six to fourteen injections, following which about 10 per cent gave negative Wassermann (blood) but only about 2 per cent of those who gave negative Wassermanns seemed normal mentally. Thirteen patients were made decidedly worse. This was manifested by convulsions, marked loss of physical strength and they died rather promptly. The course of the disease in the other cases did not seem to differ materially from the average course of an untreated case of paresis, which is marked by periods of remissions and exacerbations, but gradually progressed toward a fatal termination.

A large percentage of the patients who gave a negative Wassermann, following the course of treatments, were discharged from the institution, but many were returned, at which time they gave a positive Wassermann. Some of the discharged left the state. Consequently I am unable to say whether all of the negative cases are again positive or not, but I am of the opinion they are, as some of the most promising cases returned and are now in the final stages of paresis or have died.

In the following table we have compared the cases of paresis for the years 1917-18 that were treated by mercurials and iodides and which would have been suitable for salvarsan, with our cases of the 1919-20 series that were treated with salvarsan.

Paretics treated, 1917-18, 98; discharged, 23; eloped, 4; paroled, 9; died, 18; remaining in hospital, 44.

Paretics treated, 1919-20, 114; discharged, 21; eloped, 3; paroled, 13; died, 24; remaining in hospital, 53.

It will be sen that the number of paretics remaining in the hospital at the end of 1917-18 period was 44, and for the period of 1919-20 was 54. To these can be added the paroled and eloped who were not materially improved, which brings the total number of paretics not improved for 1917-18 to 57, or 58 per cent, and for 1919-20 to 69 or 60 per cent. The discharged were greater in 1917-18 by 2, or 5 per cent, than in 1919-20. There were more deaths by 6, or 3 per cent more in 1919-20 than the previous two year period.

It is, therefore, quite plain from our results that salvarsan in the treatment of the cases of paresis, in which there were no counterindications, was not only useless but was detrimental.

In early selected cases, that is, before the active physical signs of paresis have developed, it is indicated and should be used intensively, but it has been our experience that once paresis has developed, salvarsan is not only useless but in some cases proves dangerous.

Psychic Factor In Exophthalmic Goiter. The neurogenic theory in explanation of the etiology of exophthalmic goiter is attractive to Israel Bram, Philadelphia (Journal A. M. A., July 23, 1921). As most observers are now convinced that in emotional disturbances the functions of the endocrines, especially the thyroid, suprarenals and pituiary, are involved, he concludes that the neurogenic and pluriglandular theories are interdependent, constituting one theory, which he might term the neuro-endocrine theory. Instances of exophthalmic goiter, each presenting a history of underlying psychopathic make-up, and indicating the exciting factor to be acute emotional strain, are cited. It appears relevant to Bram that the syndrome termed exophthalmic goiter is not goiter, and the sooner this affection is removed from the classification of goiter, the sooner will a rationalization of therapeusis be affected.

THE SURGICAL SIGNIFICANCE OF PARASITISM IN THE HUMAN HOST.*

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As a cuasative factor in many diseases from acute arthritis to gastric and duodenal ulcer, focal infection has become so well established that even the surgeon is psychologically led to search these fields as the logical source of the trouble, and seldom thinks of a parasitic origin as the existing cause of disease. In cysts of a parasitic nature or origin, like the hydatid and other forms, the symptoms are often negative, until an appreciable tumor develops or an exploratory operation reveals the true nature of the trouble.

Again, the symptoms of parasitic infection are not well characterized during the gastrointestinal periods or during the early period of general infection. After the muscles have been invaded, it becomes simply a Verdun conflict for the mastery between the strength of the patient and the life of the parasite, securely entrenched in nearly every tissue and even to the spinal fluid, as was first demonstrated by Van Cott, Lintz and later confirmed by Bloch and Elliot.

Warbles. In man warbles occur under the skin, They belong to the hypoderma species, the hypoderma bovis. Its life history is interesting. The eggs are deposited on the skin and hair of cattle, and are transferred to the mouth by licking. The human may ingest the eggs by handling the hair and eating with unclean hands.

Again, the swallowed or ingested larvae bore thru the mucous membrane of the esophagus and pharynx, from whence they travel to the subcutaneous tissue, and form tumors under the skin which is provided with a small aperture, thru which the larva eventually escapes.

In animals it drops to the ground, becomes a pupa, and finally develops into a fly. The larvae that enter the stomach proper suffer a chemical death, as the activity of the stomach exerts a germicidal action against bacteria and higher organisms. This doubtless explains why the dog and other carnivorous animals, known to have a high acidity, are free from trichinosis.

The wandering parasites of hypoderma species, as they journey thru the various tissues of the body, become a source of irritation. Long before they make their subcutaneous presentation, they have been irritating passengers along the course of the nerve trunks, so that they make the appearance under the chain of symptoms, varied in character. Only recently has the practice of using the gullet of animals in making sausage been condemned by the United States meat inspectors.

A. E., age 11 years, rural district school boy.

History negative, except pneumonia and influenza one year ago.

Present complaint. Three months ago began to have painful joints, especially the right knee and ankle, and rigidity of the muscles of the neck, with continuous appearance of small abscesses near these joints along the spine (fig 1.)

Temperature, pulse, respiration apparently normal. Pupils and reflexes normal. Slight enlargement of tonsils. Lungs and cardiovascular system not affected.

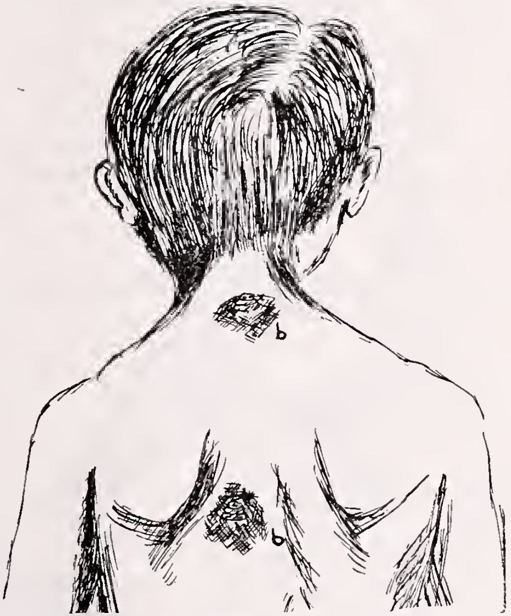

Fig. 1.
Escaping hypoderma bovis thru aperture in abscess, causing pain and rigidity of neck.

Urine negative. Blood examination pointed to a parasitic etiology. Hemoglobin 85 per cent. White count 12,200· red count 4,420,000. Differential count, polymorphonuclears 58 per cent, small lymphocytes 21 per cent, eosinophiles 20 per cent, large lymphocytes 1 per cent. Examination of stools, negative.

On the apex of the surface of every abscess was a small aperture, thru which could be forced seropurulent discharge. In our search for a good smear we were able to expel thru each aperture a small worm that proved to be hypoderma bovis type of warble.

Without a differential blood examination the clinical picture and course of the infection in this case led several others to assign the cause to a focal infection of early Potts. The error is all the more lamentable, when the rigidity of the neck and spine is taken for a Potts, and the patient's misery is aggravated by wearing a brace or cast.

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*Read before Pierce County Medical Society, Tacoma, Wash., March 8, 1921.

Trichinosis. H. R., age thirty-three years, entered St. Joseph's Hospital, on a stretcher in his fifteenth week of disease, totally incapacitated and greatly emaciated, having lost sixty pounds weight.

Nearly every joint in his body was affected. His forearms were flexed on the arms, and there was restriction of the wrist joints so marked that he was unable to lift a cup or feed himself. There was rigidity of the muscles of the neck, and deglutition was difficult. The chest muscles seemed to escape. The abdomen was tender to touch, with rigidity of the recti muscles, and especially tender in the right iliac region, with the limbs so flexed upon the abdomen that the possibility of appendiceal or retrocecal abscess was suggested. The lower limbs showed cysnosis and edema, due to the long confinement. The patient had bed sores.

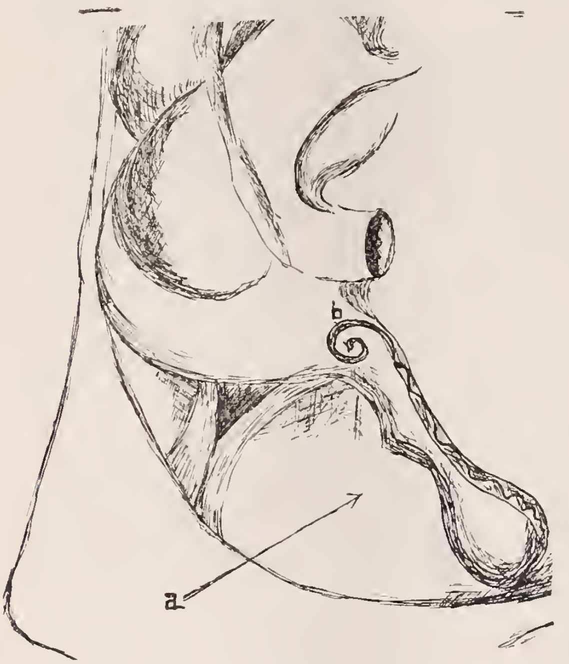

Fig. 2.
a, cystic appendix, due to trichocephalus dispar. b, trichocephalus in submucosa of appendix.

It was apparent that he was suffering from a severe type of anemia, and a blood examination at this time showed erythrocytes 3,000,000, hemoglobin 55 per cent, leukocytes 30,000, neutrophils 58 per cent, lymphocytes, small and large, 7 per cent, eosinophils 35 per cent.

A section of muscle fibers was removed from the lower third of a biceps muscle, and numerous living trichinae showed in every field. The cerebrospinal fluid or blood was not examined for trichinae.

This patient went thru the usual focal infection purgation and was completely discouraged. It only confirms a well established opinion that parasitic infection like hysteria may simulate many diseases.

We hardly need to resort to our records, for memory soon recalls a type of patient that generally gives a history of abdominal distress, a degree of right iliac pain with diarrhea, bloody stool, with final resort to surgery, when a cystic condition of the appendix is found.

Fig. 2 is a drawing of a case, due to the trichocephalus dispar, whose habitat is in the cecum and appendix. Appendectomy for this parasitic infection gives no better relief than appendectomy for duodenal ulcer.

Fortunately for our patient suffering with trichinosis we were unaware of the use and results of neosalvarsan in the disease, as reported by Van Cott and Lintz. We realized our utter helplessness with the usual therapy, and decided to use intravenously 0.06 gm. of neosalvarsan. During its administration he became slightly cyanosed, and it was followed by a marked chill. Within forty-eight hours, he felt less pain than he had for months, and was soon able partially to extend his forearms. Within one week he was in a chair and soon left the hospital. Fourteen days after intravenous injection he was able to walk with crutches, and three weeks later he discarded his crutches, and went on to an uninterrupted recovery.

The report of Van Cott and Lintz and their unfavorable results in the use of salvarsan and neosalvarsan would make us slow to use these products. These should be given during the period when the muscles are invaded and the trichinae encapsulated. In our case we were rewarded with a most favorable result, which seems to prove beyond a doubt that, in certain stages of the disease at least, neosalvarsan intravenously is a rational method of treatment. No one doubts that salvarsan has achieved its greatest success in the treatment of syphilitic diseases, but it certainly is a most helpful adjunct, especially in the type of parasite like the trichocephalus dispar, that practically resists all methods of treatment by vermifuge, due to the fact that it burrows itself in the mucosa, by means of its long cephalic neck. It is too soon to judge the ultimate value of salvarsan in these parasitic diseases, but it is at least comforting that the salvarsan method can not be safely given by the medicine vender.

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A PLEA FOR PHOTOTHERAPY IN SURGICAL TUBERCULOSIS.*

EINAR HOFF, M. D.

SEATTLE, WASH.

The value of sunlight has in a general way been recognized almost from time immemorial. Herodotus, Hippocrates and Celus speak of the beneficial effects of the sun's rays and in ancient Rome and Athens the rich people had solaria on their houses.

A. Rollier, of Leysin, Switzerland and N. Finsen, of Copenhagen, Denmark, were the pioneers in heliotherapy and phototherapy and, due to their efforts and tireless work, many scientific facts were brought before the medical profession. Rollier in December, 1914, reported to the Swiss surgical association his results in heliotherapy. Over 2,000 cases of tuberculosis of bones and joints had been successfully treated by Rollier in one decade. Finsen, Copenhagen, by his great work in phototherapy, established it as a clinical method in the treatment of lupus vulgaris and surgical tuberculosis and the Finsen Institute, in Copenhagen, is now the Mecca for thousands of sufferers of those diseases.

Light is a wave-like disturbance which passes out in all directions from a luminous object thru an ethereal medium. Light waves are not all of the same wave length and the difference in length makes itself known to our eyes as colors. When the sun's rays pass thru a prism, they are dispersed into several kinds of light, and this we call the visible spectrum, in which it is customary to distinguish seven colors, the red rays being the longest, the violet the shortest.

Finsen began with the successful treatment of lupus vulgaris and lupus erythematosis, employing the sun's rays; but he soon adopted the electric arc light which produces radiation of practically the same character as the rays of the sun and richer in ultra-violet frequences of the spectrum.

The light rays have three properties: (1) light production—most intense in yellow, (2) heat production—red rays, (3) actinic action—ultra-violet rays.

Physiologic action of light: (1) increases metabolism, (2) increases hemoglobin, (3) pigmentation, (4) decreases blood pressure, (5) stimulates nervous system, (6) hyperemia of skin.

Law: "The intensity of the light diminishes as to the square of the distance." For instance, if the patient be one meter from the light, the amount of light received is four times less than if he were one-half meter from it.

At the Finsen Light Institute they speak of a strong and a weak light bath. The patients undress and to protect their eyes they wear colored spectacles during the bath.

Strong light bath: Three-fourths to one hour (wait twenty-four hours), then gradually from one to one-half hour. Erythema, peeling of skin, ceases in fourteen days.

Weak light bath: One-fourth to one-half hour. In 8-14 days to two and one-half hours. The skin becomes dark red from dialated capillaries.

Patients of light complexion do not tolerate the bath so well and in some cases severe systemic reaction follows the bath. Fever, chills and tachycardia have been noticed. In these cases it becomes necessary to interrupt the bath and give luke warm shower baths in between. Every light bath is followed by a shower bath and rubbing of the skin.

Erythema: The arc light causes a dilatation of both superficial and deep capillaries and, if the exposure is too powerful, a severe inflammation may be the result. The ordinary exposure gives an irritation of the skin like a mild inflammation that diminishes in forty-eight hours, leaving a chronic erythema and a pigmentation. Continued exposure with short intervals will show the same phenomena on the skin but lastly the skin will be so pigmentated that there will be no other changes to observe. The pigmentation is no doubt a protective process on the part of the body against the ultra-violet rays.

Concerning the question of immoblization in surgical tuberculosis, the Finsen Institute has adopted Rollier's plan to immobilize only in cases of pain or in order to prevent an unfavorable anatomic position and even in those cases the detachable splints have been taken off during the light bath. In tuberculosis of the large joints of the lower extremities it is important to have the patients do as little walking and stepping as possible.

Periarticular abscesses are frequently met with and in the process of treatment they are often formed. Simple puncture is preferred and later, if that does not suffice, the abscess is laid open without tampon and a prolonged light bath is instituted. It is astonishing to see how fast those incisions close and the articulations improve.

In the treatment of fistulas running directly into an articulation I wish to call attention to the increased hyperemia, serous exudate and edema of the tissues that is apt to close a narrow fistula. Neglect in those cases means retention in the joint, subsequent pyarthrosis and sepsis.

Phototherapy has been successfully used in tuberculous joints, tuberculous peritonitis, adenitis, osteitis, spondylitis, sternum, costae, tenosynovitis.

The following facts have been put forth, and demonstrated by N. P. Ernst, surgeon-in-chief, Finsen Light Institute:

(1) Phototherapy is equal to or superior to heliotherapy.

(2) Phototherapy will cure surgical tuberculosis and lupus vulgaris.

(3) Coal arc is superior to the mercury quartz light.

The Finsen light treatment for lupus vulgaris consists in exposing the lupoid area to concentrated coal arc light, which is focused on the skin thru an inverted telescope and finally passes thru a rock crystal chamber full of cold running water, so as to eliminate the red rays. It is important that the water chamber should be pressed firmly against the skin, in order to devascularize it during the seance. The sittings last about an hour and an attendant controls the crystal water chamber, keeping it firmly against the skin, and shifting it from time to time. An inflammatory reaction follows, a local leucocytosis supervenes, a soft scar is produced and the disease may entirely disappear.

Results of treatment of lupus vulgaris. Four year old cases—59.6 per cent cured; new cases—72 per cent cured.

Heliotherapy and phototherapy by the investigations of Finsen, Rollier and others have vindicated their value as a great therapeutic measure in lupus vulgaris and surgical tuberculosis and radical surgical interference should be resorted to only after a long trial of light therapy.

In America, where electricity is so cheap, every well run county and city hospital should have a department of phototherapy for the treatment of surgical tuberculosis and I venture to say that the time is not far off when it will be so. Phototherapy has come to stay and out of it will grow more knowledge of some of our obscure diseases of metabolism and internal secretion, anemias and perhaps some forms of insanity.

ACUTE DILATATION OF HEART. TOGETHER WITH ASSOCIATED PATHOLOGY IN A CASE OF SUDDEN DEATH.*

Frank R. Menne, M. D.
PORTLAND, ORE.
PROFESSOR OF PATHOLOGY, UNIVERSITY OF OREGON MEDICAL SCHOOL.

The tissues here presented were removed from a man about 40 years of age who dropped dead in a pool hall, and concerning whom little is known. He was engaged in hunting coyotes, in the process of which he dug pits and blasted with nitroglycerine.

The salient features of the autopsy in the way of anatomic changes are as follows:

Acute dilatation of the chambers of the heart, marked hypertrophy of the musculature of the heart, pronounced obliterative sclerosis of the posterior coronary artery; marked senile and luetic arteriosclerosis with slight supervalvular aneurysm formation, chronic interstitial myocarditis, marked diffuse nephritis (arteriosclerosis) marked emphysema of the lungs, edema of the brain, full stomach and voluminous bowel.

The tissues are presented because of the unusual type of syphilitic sclerosis. The lesions are ridgelike and are most pronounced in the first portion of the arch. The opening of the posterior coronary artery could not be indentified.

There is present also a diffuse obliterative fibrous pleuritis which is also found between the lobes of the lungs. In the absence of definitely demonstrable tuberculous lesions and in view of the character of these fibrous adhesions, it seems probable that this pleuritic process may have been of "influenzal" origin and, therefore, may bear evidence of this disease in the production of the acute dilatation of the heart.

Recently it has been our experience to encounter a number of acute dilatations of the heart as the immediated cause of death in a variety of complications. It is also the experience of those doing postmortems to find a considerable number of so-called postepidemic acute dilatations of the heart in the presence of a previously existing pathologic condition. It would appear that an influenza epidemic leaves those afflicted with a weakened myocardial musculature, especially when a lesion of the coronary arteries and a resulting fibrosis of the heart musculature preexisted. If we might be permitted then, to draw the conclusion that this particular individual had recovered from the influenza, this together with the intrinsic pathology of the heart, and its embarrassment by the gastrointestinal engorgment and volume are the etiologic factors concerned.

It is also important to consider the possible influence of the fumes of nitroglycerine which is a well known vasodilator. Altho it is known that vasodilators are of benefit in so-called anginal spasms of the heart, their injudicious use may have an obnoxious effect. This is because a constant pronounced decrease in the blood pressure may deprive important organs of a sufficient amount of blood to enable them to carry on their functions. It must be remembered that the narrowed orifices of a diseased vascular system make it necessary for the establishment of a higher pressure, in order to drive a proper amount of blood thru them. It is, therefore, extremely inadvisable to constantly attempt to approach the normal blood pressure in individuals exhibiting sclerotic lesions in the vascular system.

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*Read before the Portland City and County Medical Society, Portland, Ore., Jan. 19, 1921.

NORTHWEST MEDICINE
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August, 1921

EDITORIAL

A UNIQUE MASTER SURGEON.

Jullundur Smith, otherwise Colonel Henry Smith of Amritsar, India, was the guest of the Pacific Coast Society of Oto-Ophthalmology at its annual meeting held in Seattle, July 14-17. He addressed the society on the subject of "immature cataract" and held an operative clinic on twenty-two cases of cataract at the City Hospital. Colonel Smith is a picturesque character in the medical world. Thirty years experience in the British Medical Service in, India has developed all the traits of character which one associates with those men who carry civilization to the uttermost parts of the earth. He often worked alone with few materials and little money but with an enormous amount of general surgical material. During the season when cataract operations were possible he operated on large numbers of cataracts and built up a reputation among the native population, coextensive with the Hindoo Peninsula. His results were so phenomenal that he was able to collect money from the higher class of natives sufficient to erect, without government assistance, a large hospital at Amritsar, devoted largely to cataract work. At his first clinic held in his completed hospital he and his assistants did one hundred thirty-seven operations in one day.

The technic he has perfected, in spite of vigorous opposition from many quarters, is his own. He stands at the head of a patient, operating indifferently with right or left hand, tilting his ever-present cigar at various angles. Contrasted with the delicate Graefe that he wields, his hands look very large, but he extracts the cataract in its capsule with the utmost ease and dexterity. This complicated movement is simplicity in itself in his hands. His personal characteristic lack of observance of the rules governing modern surgical operations is a by-word among his opponents but, when one sees Colonel Smith operating, he is uncertain whether jealousy or conservatism prompts the unsparing criticism. He inspires the utmost confidence in his patients. There is usually no hitch during the operation. If things go wrong, however, and the lens slips back or vitreous escapes, the "master surgeon" is revealed; the Colonel speaks a few words and imperturably goes after the cataract.

Between operations he puffs his cigar while examining other cases, telling them in a gentle voice his decision and the possibility of successful operation. All who attended the meeting of the society, who conferred with him on various occasions and who saw him operate, felt convinced that here was a master surgeon, well entitled to be called "The Grand Old Man from India."

WASHINGTON ASSOCIATION MEETING.

The annual meeting of Washington State Medical Association will be held at Seattle, Sept. 1-2. Below is the program, as arranged at present. It will be noted that the afternoon of the first day is devoted to consideration of various questions affecting the welfare of the general public and the medical profession. The importance of these subjects will be appreciated.

The State Board of Health will hold a meeting of County health officers, Aug. 30-31. Discussion will center about problems of health officers, and rules and regulations governing their work. Dr. Young, of Victoria, provincial health officer, will be a leading speaker of the meeting. This meeting will be closely connected with that of the state association. Further details of the meeting with information concerning social and other features will be contained in the official program which will be distributed later in the month.

PROGRAM.

Sept. 1, 9:00 A. M.

HOUSE OF DELEGATES.

Board of Trustees.
Reports of Officers and Committees

1:00 P. M.

GENERAL SESSION.

Public Health and Policy.

1. **Report of Committee on Tuberculosis.** Dr. C. Quevli, Tacoma, Chairman.
2. **Veneral Prophylaxis.** Dr. J. S. Thomas, Seattle, Chairman.
3. **Conservation of Vision.** Dr. E. C. Wheeler, Tacoma, Chairman.
4. **Hospital Standardization and Survey.** Dr. George Swift, Seattle, Chairman. Discussion—Dr. W. T. Williamson, Portland, Ore.
5. **Functions of the State Department of Health.** Dr. Paul Turner, Commissioner of Health.
6. **Public Health League of Washington.**

Sept. 2, 9:00 A. M.

GENERAL SESSION.

1. **Technic of Operation for Goiter to Improve Post-Operative Cosmetics.** Dr. John Hunt, Seattle. (Lantern slides).
2. **Report of a Case of Congenital Absence of Tibiae, Treated by Bone Transplants.** Dr. Russell T. Congdon, Wenatchee. (Lantern slides).
3. **Operative Treatment of Old ununited Fractures of the Hip.** Dr. E. O. Jones, Seattle.
4. **Technic of Bone Surgery with a New Bone Saw.** Dr. Mitchell Langworthy, Spokane.

1:00 P. M.

HOUSE OF DELEGATES.

Election of Officers for 1921-1922.

GENERAL SESSION

1. **Backache.** Dr. A. H. Peacock, Seattle.
2. **The Pathogenesis of Papilloma of the Gall-bladder.** Dr. John R. Corkery, Spokane. (Lantern slides).
3. **Reconstruction in Industrial Surgery.** Dr. H. J. Whitacre, Tacoma.
4. **Surgical Tuberculosis of the Cecum.** Dr. W. D. Read, Tacoma.

MEETING OF UTAH ASSOCIATION.

The twenty-seventh annual meeting of Utah State Medical Association will be held at Hotel Utah, Salt Lake City, September 13-15. The program appears below, as arranged at this writing. It is subject to alterations or additions.

PROGRAM

Tuesday, Sept. 13,

ROOF GARDEN.

9:30 A. M.

Meeting of Council.

10:00 A. M.

President's Address. R. R. Hampton, Salt Lake City.

Disease of the Hip Joint in Children. J. E. Tyree, Salt Lake City.

Discussion—S. C. Baldwin, D. K. Allen.

Vertigo, with Cases and Demonstration of the Baroney Chair. Isaac H. Jones, Los Angeles.

Discussion—A. J. Ridges, H. G. Merrill, D. W. Henderson.

12 Noon.

Meeting of the House of Delegates.

2 P. M.

An Analysis of the Cases Handled by the Salt Lake City Office of the United States Public Health Service during the Past Year. B. W. Black, Salt Lake City.

Discussion—J. F. Sharp, Willard Christofferson, J. H. Peck.

A Clinical and Experimental Consideration of Non-Tuberculous Renal Infections in Men, Women and Children. Frank Hinman, San Francisco.

Discussion—F. A. Goeltz, W. G. Schulte, David Westwood.

Gall-Bladder Drainage. T. C. Gibson, Salt Lake City.

Discussion—W. L. Lindsay, J. R. Llewellyn, H. W. Nelson.

SUPPER ROOM—HOTEL UTAH.

7 P. M.

Annual Dinner of the Association,

Wednesday, Sept. 14.

9 A. M.

CLINIC—L. D. S. HOSPITAL.

Cases of Heart Disease. A. W. Hewlett, San Francisco.

Cases of Thyroid Disease. Emil Goetsch, Brooklyn.

ST. MARK'S HOSPITAL.

Cases of Genitourinary Disease. Frank Hinman, San Francisco.

ROOF GARDEN.

12 Noon.

Meeting of the House of Delegates.

2 P. M.

Significance of Symptoms Referable to the Epigastrium. E. S. Budge, Logan.

Discussion—E. D. Hammond, H. A. Adamson, J. S. Alley, G. H. Christy.

Modifications in the Indications for Operative Intervention in Gynecology, Imposed by Present-day Radium Therapy. Roland E. Skeel, Los Angeles.

Discussion—H. P. Kirtley, R. S. Allison, C. S. Gardner, W. H. Rothwell.

Preparation of the Cancer Patient for Operation. D. T. Quigley, Omaha.

Discussion—A. J. Hosmer, G. W. Middleton, A. C. Behle, J. W. Hayward.

7 P. M.

Meeting of the House of Delegates.

SUPPER ROOM.

8 p. m.

The Problems in the Treatment of Diabetes Mellitus. Nelson W. Janney, Los Angeles. (Lantern slides).

Discussion—A. L. Castleman, W. R. Tyndale, G. G. Richards.

Effect of Quinidine Sulfate on Auricular Fibrillation. A. W. Hewlett, San Francisco. (Lantern slides).

Discussion—Clarence Snow, M. M. Critchlow, Willard Kay.

Normal and Pathologic Reactions to Vestibular Stimulation. Isaac H. Jones, Los Angeles. (Moving pictures).

Thursday, Sept. 15.

CLINIC—HOLY CROSS HOSPITAL.

10 A. M.

Cases of Cancer. D. T. Quigley, Omaha.

Cases of Hypothyroidism with Demonstration of Basal Metabolism Apparatus. N. W. Janney, Los Angeles.

ROOF GARDEN.

12 Noon.

Meeting of the House of Delegates.

2 P. M.

Thyroid Studies. Emil Goetsch, Brooklyn.

Discussion—J. F. Critchlow, E. F. Root, R. T. Richards, J. R. Morrell.

The Western Division of the A M. A. A. C. Reed, San Francisco.

Discussion opened by members of the Council.

Hygiene of the Eye. Walter T. Hasler, Provo.

Discussion—E. M. Neher, F. L. Stauffer, W. W. Bennett.

Report of the House of Delegates.

Installation of the President-Elect.

Adjournment.

MEDICAL NOTES

OREGON.

New Medical School Building. The Board of Regents of the University of Oregon has finally accepted and approved the finished plans for the new University of Oregon Medical School building on the campus on Marquam Hill in Portland. The building will cost two-hundred and fifty thousand dollars, nearly one-half of which has been provided in a gift from the General Education Board of the Rockefeller Foundation. The building will be of reinforced concrete and brick, three stories high and will house the administration offices, library and extension of the laboratory departments and portions of the clinical departments of the school. Completion of this building will enable the enrollment of larger classes, which are now limited to sixty each. Construction will begin at once and it is expected that the building will be completed in time for the opening of the school year in the fall of 1922.

Eastern Oregon District Medical Society held its annual meeting at Hot Lake, July 13. Thirty physicians from Eastern Oregon were in attendance An interesting program of papers was presented. The following officers were elected for the ensuing year: Pres., T. J. Higgins, Baker; First Vice-Pres., A. H. Brown; Second Vice-Pres., A. C. McCown, Union; Secy-Treas., C. J. Bartlett, Baker. The meeting next year will be held at Baker.

Health Officers Merged. Dr. W. E. Hempstead, of Oregon City, was last month appointed county health officer and county physician by the county court. In the latter office he succeds Dr. W. J. Norris, deceased. As health officer he succeeds Dr. O. A. Welch, appointed to office by the State Board of Health.

Hospital Permit Granted. Last month the Portcity council granted a permit for the erection of a new hospital by the Portland Sanitarium and Benevolent Association at East 60th and Belmont Streets. Private property owners in the neighborhood had endeavored to block the permit on the ground that it would depreciate property values.

Hospital Permit Contested. A permit for the erection of the Portland Medical Hospital on Nineteenth Street, between Kearny and Lovejoy Streets, has been hotly contested. Objections were presented by property owners, in spite of the fact that several hospitals already exist in the immediate neighborhood, so that this has become a real hospital center. This hospital will accomodate one hundred patients, which additional hospital provision is greatly needed.

Dr. Delbert Stannard has located for practice at Eugene, having moved there from Portland.

WASHINGTON.

Annual State Examinations. Last month the state medical examination was held at Olympia under the supervision of the Department of Licenses. Thirty-nine physicians were admitted to practice by reciprocity with other states. The following sixteen were granted licenses from examination: Hugh Hay Adams, Renton; Ellery L. Botts, Walla Walla; Truman E. Bishop, St. Johns; N. B.; Burton A. Brown, Frederick Arnold, Lee Alexander Demerchant, John Henry Gosnell, Kinchi Ide and Phillip Schonwald, Seattle; Charles R. McColl and Albert Smith McCown, Tacoma; Glenn M. Young, Wilbur; Armin M. Fischer, Robert O. Bradley and Miller Edwin Preston, Spokane; and Tobias M. English, Yakima.

University Extention Course. Last month the fifth annual course of lectures was delivered at the University of Washington campus, Seattle. Eighty physicians were in attendance, about half of them from outside Seattle. The lectures on medicine were delivered by Dr. C. F. Hoover, Western Reserve University, and the surgical lectures by Dr. C. A. Hamann, of Western Reserve University. Lectures on nose and throat were delivered by Dr. H. P. Mosher of Harvard Medical School.

Hospital Enlarged. The General Hospital of Everett has been incorporated, this being the legal form of organization for the expenditure of $150,000 to remodel Columbia College and convert it into a modern hospital. This institution was formerly a Lutheran College.

New Hospital Contemplated. It is proposed to take the final steps in September toward the erection of a non-sectarian hospital in Yakima, to accomodate at least 50 patients, at an estimated cost of $200,000. The committee in charge represents numerous fraternal bodies and religious demoninations.

Drugless Hospital to be Built. Seven drugless doctors of Spokane propose to erect a hospital to be known as "The Peoples Hospital." It is announced this will be equipped with all modern appliances and, as suggested by its name, will be available for all practitioners, including the medical profession.

New Hospital to be Built. The commercial club, of Newport, will soon start a drive for funds for the erection of a modern hospital. It will accomodate about twenty patients at the estimated cost of $12,000 dollars.

Washington Tuberculosis Association held its annual meeting at Aberdeen, July 28-30. A large number of delegates were present from the twenty-nine counties that have antituberculosis leagues. Dr. Geo T. Palmer, of Springfield, Ill., well known tuberculosis specialist, was the principal speaker.

Reappointed Health Officer. Dr. H. H. Smith, of Yakima, has been reappointed county and city health officer for the ensuing two years. He was also appointed town health officer of Naches City,

Health Officer Resigns. Dr. Charles Stafford, health officer of Cle Elum, has resigned on account of reduction in salary.

Dr. Henry V. Bories has located for practice in Seattle. He is a son of the late Dr. Emil Bories, who practiced for many years in that city.

Physician Injured. Dr. Richard Connell, city physician of Yakima, was knocked down by an automobile last month, sustaining a broken leg and other injuries.

Physician Vindicated. Dr. J. R. Scace, Centralia, recently received a jury verdict in a suit for $2,500 on an allegation of malpractice.

Medical Weddings. Last month Dr. A. J. Helton, of Yakima, was married to Miss Olive M. Harris, formerly of Kansas City. Dr. E. H. Van Patten, of Dayton, was married to Mrs. Helen Edmiston of that city. Dr. C. P. Balabanoff, of Tacoma, was married in Vancouver, B. C., to Mrs. Alice M. Byam, of Montreal.

IDAHO.

Nurses Home to be Enlarged. The Nurses' Home, in connection with St. Luke's Hospital, Boise, is to be enlarged, bids for the work having already been received.

Dr. C. A. D. Jenson has located for practice at Mackay, coming there from Salt Lake City.

Dr. C. O. Armstrong, recently of New York, has located for practice at Moscow.

OBITUARIES.

Dr. J. D. Fenton, of Portland, died from drowning. He disappeared on March 19. The body was found in the Williamette river early last month. About a year ago he gave up practice on account of ill health. He was 58 years of age, born in Missouri. As a boy he accompanied his parents across the plains and settled in Yamhill County. He studied medicine in University of Oregon and settled in Portland, where he practiced for thirty years.

Dr. Charles W. Hall died at Tacoma, Wash., July 24 at 57 years of age. He was district surgeon of the Chicago Milwaukee R. R. and had lived there four years, coming from McKenna.

Dr. Henry B. Blake died at Cottonwood, Ida., July 3 at the age of 79. He was the first physician to practice in Moscow. He built one of the first homes in that city more than forty years ago. At that time Walla Walla was the nearest railroad station and mail was brought from Lewiston by horseback carriers.

Dr. Raymond Duwar of Ephrata, died at Spokane, July 7 as the result of injuries received near Soap Lake, July 4. His automobile turned over, pinning him to the ground and crushing his chest and abdomen. Later it was found he had a fractured skull. He was a young physician who had practiced in Ephrata for a short time. He was highly esteemed by the people of that section.

Dr. John C. Wood died at Portland, Ore., June 28 after an illness of a few days. He was 79 years of age. He was born in Whiteland, Ind. Ten years ago he moved to Oregon from Franklin, Ind., where he had practiced for some years.

REPORTS OF SOCIETY MEETINGS

OREGON STATE MEDICAL ASSOCIATION.

MINUTES OF THE FORTY-SEVENTH ANNUAL MEETING OF OREGON STATE MEDICAL ASSOCIATION, AND FIFTH TRISTATE MEETING, PORTLAND, ORE.

JUNE 30—JULY 2, 1921.

House of Delegates.

FIRST SESSION

June 30, 8:30 a. m.

The House of Delegates met at 8:30 a. m. in the Assembly room at the Multnomah Hotel. The President, Dr. Joseph A. Pettit, presided and called the meeting to order. Dr. Raymond E. Watkins, the secretary, kept the record of the meeting. The minutes of the last meeting were read and on motion they were approved.

Inasmuch as the minutes were long and it was very difficult for members in the back of the room to hear them distinctly or to comprehend intelligently the importance of many of the acts reported by the Secretary, and inasmuch as the minutes are printed in full in Northwest Medicine immediately following the meetings, it was moved by Dr. J. Earl Else that the Secretary obtain from Northwest Medicine enough reprints of the minutes so that they may be distributed to members of the House of Delegates at the beginning of the next meeting, in order that they may have before them a record of the last meeting. The motion was seconded by several members and upon vote unanimously carried.

The report of the Secretary was read and upon motion approved.

The roll call disclosed the following members present:

Joseph A. Pettit, President.

Harvey C. Clements and Richard H. Wellington, Vice-Presidents.

Raymond H. Watkins, Secretary.

Alvin W. Baird, Roy S. Stearns, Philip J. Bartle, Abram L. Houseworth, Hugh S. Mount, Richard B. Dillehunt, Ernest A. Sommer, W. T. Williamson, C. J. Bartlett, R. J. Pilkington, L. G. Johnson, T. J. Higgons, W. T. Phy, C. A. Downs, Quinten Quinten Tucker, C. E. Sears, F. R. Menne, H. M. Greene, J. Earl Else, E. A. Pierce, M. B. Marcellus, Warren Hunt.

The Treasurer, Dr Jessie M. McGavin, was absent and consequently that report was not presented.

The President appointed Drs. Houseworth, Wellington and Greene as the auditing commitee with authority to secure the report of Treasurer.

Dr. Baird was asked for a report of the councilors, and replied that he was not aware that he was required to make a written report; but said the council had had several meetings, principally relating to the malpractice suits and other important matters and worked in harmony. Dr. W. T. Williamson suggested that the reason the council had no written report to offer was because it had not organized by electing officers after the last meeting, and suggested that that matter be not overlooked this year. The President suggested that the council should not overlook so imporimportant a matter this year.

The reports of standing committees were deferred until a later time.

The Secretary announced that three applications were to be considered for new charters: Klamath County, Union County and Jackson County.

Motion was made and carried that these applications be referred to the Council for report again to the House of Delegates tomorrow morning. Thereupon on motion the House of Delegates resolved itself into a committee of the whole for nominations, and the committee was asked to make its report tomorrow morning.

The President announced that the House of Delegates would meet tomorrow morning at 8:30. Thereupon on motion the House adjourned.

COUNCIL MEETING.

June 30, 8:30 a. m.

The Council of the Oregon State Medical Association met at Portland, on this date, at the Multnomah Hotel. Called to order by the President, Joseph A. Pettit. The Secretary, Dr. Raymond E. Watkins, kept the minutes of the meeting.

The following were present: Joseph A. Pettit, Harvey C. Clements, Richard H. Wellington, Alvin W. Baird, Roy S. Stearns, Philip J. Bartle, Abram L. Houseworth, Hugh S. Mount.

The first consideration was the letter from the secretary of the Klamath and Lake County Medical Society, suggesting that a separate charter be granted for Klamath County. After some discussion, on motion the Secretary was instructed to write a letter to the secretary of that society, suggesting that the society be left as it is because of the fact that there were only thirteen members in Klamath and two in Lake, and that otherwise the matter be laid on the table until the next annual meeting, and that this recommendation be made to the House of Delegates.

On motion the applications of both Jackson and Union counties for a charter were recommended for granting and the matter referred to the House of Delegates that action be taken thereon tomorrow morning.

There being no further business, the Council adjourned to meet tomorrow morning immediately after the meeting of the House of Delegates.

COUNCIL MEETING.

July 1, 9:30 a. m.

The Council of the Oregon State Medical Association met at Portland, on this date at the Multnomah Hotel. The meeting was called to order by the President, Joseph A. Pettit. The Secretary, Dr. Raymond E. Watkins, kept the minutes of the meeting.

The following members were present: Joseph A. Pettit, Harvey C. Clements, Richard H. Wellington, Alvin W. Baird, Roy S. Stearns, Philip J. Bartle, Abram L. Houseworth, Hugh S. Mount.

Dr. Warren Hunt, of Klamath County, was invited to state any reasons which might exist for granting a separate charter to Klamath County Medical Society. He stated the reason for consideration of this matter by the Klamath and Lake County Medical Society was because all members of that society, except one or two, resided in Klamath County and the other places were isolated, and it was only occasionally that a member from outside be present, but he saw no reason why the present charter should be changed, and said it would be satisfactory as far as he knew to allow it to remain as it is.

On motion made by Dr A. W. Baird the matter of granting a separate charter to Klamath County Society was laid on the table, and the present charter to Klamath and Lake County Medical Society was allowed to stand. Upon vote the motion was unanimously carried.

There being no further matters to come before the council on this date, the meeting adjourned until tomorrow morning at 8:30.

HOUSE OF DELEGATES.

SECOND SESSION.

July 1, 8:30 A. M.

The House of Delegates met at 8:30 a. m. in the Assembly room of the Multnomah Hotel on July 1. The meeting was called to order by the President, Dr. Joseph A. Pettit. The Secretary, Dr. Raymond E. Watkins, kept the minutes.

The roll call disclosed the following present: Drs, Pettit, Cathey, Clements, McGavin, Wellington, Watkins, Bairs, Cardwell, Paul Rockey, Roy S. Stearns, Bartle, Houseworth, Hugh S. Mount, Dillehunt, Sommer, Williamson, Else, Bartlett, Bosworth, Neulen, Johnson, L. G., Higgins, Phy, Tucker, Moore, C. U., Sears, Menne, Greene, H. M., Frank Smith, E. A. Pierce, Marcellus, Williamson, Hunt.

Reading of the minutes of yesterday was dispensed with.

Upon motion of Dr. Cathey, seconded by several members, the House of Delegates authorized the granting of charters to the Jackson County and the Union County Medical Societies.

The treasurer was present and stated her report was ready, and the President authorized the auditing committee to proceed at once to the audit and make report tomorrow morning.

The President stated that the Association had borrowed $500 from the Medical Defense fund for the purpose of fighting the campaign against vaccination, and inquired of the Treasurer if said amount had been repaid. The Treasurer stated the amount had been repaid to the fund.

The Secretary stated that, at the time it became necessary to borrow this money for the purpose of fighting the antivaccination bill, there was no way according to the Constitution that the action could be authorized, and now that the loan had been made and repaid, he wished the House of Delegates to ratify the action of the council. The

Secretary stated that it was imperative that action should be taken promptly to be effective.

Thereupon a motion was made by Dr. Sears that the House ratify the action of the council making the loan for the purpose stated; the motion was seconded by Dr. Greene, and upon vote was unanimously carried.

The Secretary stated that, at the time this antivaccination bill came up to go before the voters of the state, it became a serious issue and there was immediate urgent need for action; that the matter was brought up before the League for the Conservation of the Public Health which held several meetings and appointed several committees, and it was found necessary to raise money at once; the City and County Medical Society donated $500 and the State Universities $500 and the State Association $500. But there was no authority vested in any committee to donate this money and many of the members of the council were reluctant about taking the action. It appears that there should be some measure taken so that the council could meet such emergencies.

The President suggested that the matter would have to be in writing and presented as a proposed amendment to the constitution; and that, if any member wished to prepare such a proposed amendment, he could present it to the House tomorrow morning.

Time of Meetings. The topic was introduced by Dr. Earl Else, who stated that in other states the state meetings were arranged so they would not interfere with the meetings of the American Medical Association; that Washington and Idaho both hold their meetings in the fall, partly for that reason, and in talking to men from various states he found that they arranged their meetings to conform with the meetings of the American Medical Association, and suggested that it would be well to have the tristate meetings placed at some date, when they would not interfere with the American Medical Association meetings or conflict with them, should any of the members of this association wish to attend the American Medical Association as well as the tristate and state meetings, and asked that the matter be discussed.

Dr. W. T. Williamson approved of such a change, making the time flexible so that it would coordinate with the American Medical Association meetings, and suggested that a committee of the Oregon State Association be named to confer with the other states.

Dr. E. A. Sommer suggested that the meetings also take into consideration the Alumni Association meetings, so that they would not conflict as to dates, and said that the two organizations should be brought together, and suggested that a resolution be drawn and voted upon.

Dr. Williamson suggested that the matter be referred definitely to the Council, giving it power to act in such a manner as would coordinate with the American Medical Association and other meetings; suggesting that the council confer with and act together with the committee from Washington and Idaho.

Thereupon Dr. H. M. Greene moved that the council be empowered to select a date and the place of the next meeting of the Oregon State Medical Association, taking into consideration that the American Medical Association meets in St. Louis in May of next year. The motion was seconded and upon vote was unanimously adopted.

Dr. E. A. Pierce suggested that the tristate meetings be held separately from the meetings of the State Associations.

Dr. Else said there had been a great deal of talk on that subject and that the matter was under consideration by a number of men; it was to be taken up at the general association meeting today or tomorrow at the same time inviting Montana to join with a big Northwest meeting, with the ultimate idea of having a committee appointed to confer with other societies and with power to act.

Dr. Sharples, of Washington, agreed with Dr. Else.

Dr. G. W. Swift, of Washington, also said he thought it would be a good plan to try to form some plan by which a big Northwest meeting could be held at least once each year.

Dr. D. A. Nicholson, of Seattle, also agreed that it would be a good plan.

Dr. Else thereupon moved that the matter be referred to the general session, which motion was seconded and carried.

The President thereupon took occasion to thank the Washington men for their hearty cooperation and for their large attendance and encouragement.

Dr. Richard A. Dillehunt suggested that some consideration should be given to the marriage hygienic bill which so nearly passed in the last election in Oregon, stating that, if such legislation is to be passed, it would be proper that it should originate with the Medical Association, and that it was properly a subject for the tristate session to consider, so that the three states could formulate and adopt a law which would go into effect in the three states at about the same time.

Dr. H. M. Greene considered it a vitally important problem and one that should not be delayed, He believed it properly a matter for the medical profession. He advised that a committee be appointed by the Oregon State Association, to confer with Washington and Idaho.

Dr. E. A. Sommer suggested that a resolution should be drafted to cover the proper scope of the important subject.

Dr. H. M. Greene moved that the President appoint a committee to confer with Washington and Idaho with the object in view of framing some proper legislation covering the subject, so that the three states would not have conflicting laws. The motion was seconded and carried.

The President appointed Drs. R. B. Dillehunt, H. M. Greene and E. A. Sommer.

Thereupon the House of Delegates resolved itself into a committee of the whole for the purpose of making nominations for the officers of the association, with the following result:

President, Dr. Abram L. Houseworth, of Marshfield; Dr. Robert J. Pilkington, of Astoria; Dr. W. D. McNary, of Pendleton.

First Vice President: Dr. E. B. McDaniel, of Portland; Dr. James Rosenfeld, of Portland.

Second Vice President: Geo. E. Houck,of Roseburg; Dr. J. W. Huff, of Baker.

Third Vice President; Dr. H. S. Pernot, of Corvallis; Dr. Frank Boyden, of Pendleton.

Treasurer: Dr. Jessie McGavin, of Portland; Dr. J. Earl Else, of Portland.

Secretary: Dr. Raymond E. Watkins, of Portland; Dr. Homer I. Coffen, cf Portland.

Council: Drs. M. B. Marcellus, A. W. Baird, R. B. Dillehunt and E. A. Pierce.

The President announced that 580 had registered at the present meeting on the first day, which was a greater number than had ever been in attendance at the tristate meetings of Wisconsin, Iowa and Illinois; that this attendance when the full registrations are counted and in, would mean 33.5 per cent. of all the physicians in the Pacific Northwest represented by the states represented at this meeting.

Announcements were made and those from outside were urged to remain over for the entire meeting.

COUNCIL MEETING.

July 2, 8:30 a. m.

The Council meeting was called to order by the President, Dr. Pettit. The record of the meeting was kept by Dr. Watkins, secretary.

Roll call disclose the following present: Drs. Pettit, Baird, Cardwell, Paul Rockey, Roy S. Stearns, Bartle, Watkins and Houseworth.

The minutes of the last two meetings were read and approved.

The President announced that the Council would elect officers at its next meeting which would be at the call of the President.

There being no further business, on motion the meeting adjourned.

House of Delegates.

THIRD SESSION.

July 2, 8 a. m.

The House of Delegates met in the Assembly Hall of the Multnomah Hotel at 8 o'clock on July 2. The President, Dr. Joseph A. Pettit, called the meeting to order and presided. The Secretary, Dr. Raymond E. Watkins, kept the record of the meeting. The reading of minutes was dispensed with.

The roll call disclosed the following present: Dr. Joseph A. Pettit, President, Dr. Raymond E. Watkins, Secretary. Also Drs. Clements, Wellington, Baird, Cardwell, McGavin, Paul Rockey, Stearns, Bartle, H. S. Mount, Whiteside, Williamson, Dillehunt, Marcellus, Else, C. B. McDaniel, Sommer and Houseworth.

Motion was made and carried that the minutes of the House of Delegates as a whole be accepted.

The Auditing Committee, Drs. Houseworth, Greene and Wellington, reported that they had examined the report of the Treasurer and her books and found them absolutely correct, and recommended the treasurer for reelection.

On motion duly made and seconded the report of the auditing committee was accepted.

There being no further business, on motion duly made and seconded the House of Delegates adjourned.

Annual Meeting of the Oregon State Medical Association.

July 2, 9 a. m.

The meeting of the Oregon State Medical Association was called to order by the president, Dr. Joseph A. Pettit. The secretary, Dr. Watkins, kept the record of the meeting.

Dr. Else, chairman of the committee appointed to take up the matter of the formation of a Pacific Northwest Medical Association, reported that splendid progress had been made for the organization of such an association and that the consensus of opinion of the majority of the committee was that it is entirely feasible and that without a doubt they will go ahead and organize the association; that it would be their endeaver to get all the Northwest physicians in such an organization and that the Vancouver and Victoria, B. C. doctors would also become members; that such being the case it was already almost unanimously hoped that the next meeting of the association should be held in Vancouver.

Upon motion duly made and carried the matter was left in the hands of the committee to work out.

On motion duly made and carried the report of the delegate to the A. M. A. was ordered filed with the secretary for a permanent record, as the time is short and can better be utilized with the program. This was upon the suggestion of Dr. Pettit, who was the delegate.

Dr. Pettit stated that the member of the Board from the Northwest had been elected, that he could be reelected and that he was made a member of the Board of Trustees of the A. M. A.; and that this man is making himself popular and doing good work for the Association.

The report of the House of Delegates was called for and the President announced that the report, insofar as the nominations were concerned, would be made and that voting would begin immediately. Thereupon the names of the nominees were read.

Dr. Abram L. Houseworth, of Marshfield, was elected president.

Dr. E. B. McDaniel was elected first vice-president.

Dr. Geo. E. Houck was elected second vice-president.

Dr. H. S. Pernot was elected third vice-president.

Dr. Jessie M. McGavin was elected treasurer.

Dr. Homer I. Coffen was elected secretary.

Drs. Baird and Marcellus were elected on the council to succeed Drs. Cardwell and Baird.

Motion was made and seconded and unanimously adopted to extend votes of thanks to the physicians of Portland who had made this such a great meeting and success; to the ladies who had helped with the entertainment: to the press for its generous cooperation; to the S. P. & S. railroad for its generosity in taking charge of the dinner at the Automobile club house, to the County Commissioners and the Chief of Police of the city for their hearty coopeartion, and to all who had helped with the financial success of the Tristate Medical Meeting.

The President announced that the attendance had been the best and that the third day it had reached the entirely unexpected registration of over 600 physicians; the program had been the best ever had and the feeling of harmony had been ever present.

There being no further business, upon motion duly made and seconded the meeting adjourned.

Raymond E. Watkins,
SECRETARY.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Mouth Hygiene. A Text-Book For Dental Hygiene. Compiled and Edited By Alfred C. Fones, D. D. S. Bridgeport, Conn. Second Edition. 218 Illustrations and 8 Plates. Cloth 334 Pp. $5.00. Lea and Febiger, Philadelphia and New York. 1921.

This work is the result of the collaboration of nine dentists who write on the subjects of anatomy, histology, malocclusion, inflammation, deposits, accretions and caries of the teeth. In addition there are chapters on the teeth as a masticating machine, pyorrhea alveolaris, odontalgia and neuralgia, the relation of oral infections to general health and dental prophylaxis. The general viewpoint is that of the dentist rather than of the physician but there is much of value in it for the medical man. The chapter on the relation of oral infections to general health is the most valuable from a medical standpoint. The table showing the increased incidence of abscessed teeth with advancing age is most instructive.

After 50, in the routine x-ray examination of the teeth of 300 persons, none was found without at least one infected tooth. The advisability of removal of dead teeth, without periapical abscess, is not considered and yet extraction is advised in some of the leading medical clinics. The relation of oral infection to general health is treated in a rather incomplete manner and no mention is made in the chapter of the effects of pyorrhea on the general health, and only a line to it in the chapter on pyorrhea. It would have been better if this section had been written by a medical man of large experience with effects of oral infections. The book as a whole is admirable from the dental side of the subject. Winslow

Infections of the Hand. A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand and Forearm. By Allen B. Kanavel, M. D., Assistant Professor of Surgery, Northwestern University Medical School, etc. Fourth Edition Revised. Illustrated with 185 Engravings. 500 pp. Lea & Febiger, Philadelphia and New York. 1921.

The chief value of this present edition over its predecessors lies in experience gained in two distinct fields. The war provided much material and many comparatively new infections, particularly that of the gas bacillus in its various forms being studied. Industrial surgery also has provided a large series of cases which, with careful records and special study of it by Dr. Harry E. Mock, has enabled the author to supplement his experience and corroborate his earlier findings. The final chapter on the restoration of function in infections of the hand gives an excellent description of the many agencies employed, hydrotherapy, electrotherapy, massage, the use of splints, exercises, occupational therapy and psychotherapy being all separately described in their relation to treatment. This chapter also is largely the product of war experience. Forbes

Treatise On Fractures in General. Industrial and Military Practice. By John B. Roberts, A. M., M. D., F. A. C. S. Emeritus Professor of Surgery in University of Pennsylvania Graduate School of Medicine etc., and James A. Kelly, A. M., M. D. Associate Prof. of Surg. in University of Pa. Graduate School of Medicine, etc. Second Edition. Revised and Entirely Reset, with 1081 Illustrations. 755 pp. J. B. Lippincott Co., Philadelphia and London. 1921.

This well known work has been revised and brought up to date, and numerous well chosen illustrations have been added. It is a very valuable book for those who treat fractures. A chapter has been devoted to each bone, giving the anatomy, varieties, symptoms, diagnosis, prognosis and treatment. The treatment of open and infected fractures and the operative treatment of closed fractures is well considered. A chapter has been added upon industrial and war fractures and contains many very helpful suggestions. Buckner

Medical Electricity, Roentgen Rays and Radium, with a practical chapter on Phototherapy. By Sinclair Tousey, M. D. Consulting Surgeon to St. Bartholmew's Clinic, New York City. Third edition. Thoroughly Revised and Greatly Enlarged. Octavo of 1337 pages with 861 practical illustrations, 16 in colors. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $10.00 net.

This book considers the whole field of medical electricity and allied subjects and is a most comprehensive work. The ground work in electricity in all its phases is well covered and amply illustrated. Step by step the progress in this line is unfolded and all of the earlier apparatus and experiments are well described. Those things that have

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more recently come to light are presented and discussed as well, so that the book is valuable as a ready reference. Of especial value is the extensive and detailed index. FORBES

Tuberculosis and How to Combat it. A Book for the Patient. By Francis M. Pottenger, A. M., M. D., L. L. D., F. A. C. P. Monrovia, Calif. 273 Pp. $2. C.V. Mosby Company, St. Louis, Mo. 1921.

This is a practical book on tuberculosis for the use of both physician and patient. The author truly says no question asked by an earnest patient is too insignificant for an answer, and that the tuberculous patient should be instructed as to the nature of the disease and measures for its prevention and treatment. It treats of simple truths about the disease, a discussion of common symptoms which worry the patient, weather conditions, the patient's part in the cure, measures for prevention of spread of infection and other problems in which the patient is interested. The author especially emphasizes the fact that in its early stages tuberculosis should be treated as a serious disease. While the volume will benefit the physician not thoroly versed in this problem, it will be found especially useful for the patient. SMITH

Roentgen Interpretation. A Manual For Students And Practitioners. By George W. Holmes, M. D. Roentgenologist to the Mass. General Hospital, ect. And Howard E. Ruggles, M. D. Roentgenologist University of California Hospital, etc. Cloth 228 Pp. Second Edition. 184 Engravings. $3.25. Lea and Febiger, Philadelphia and New York. 1921.

This book is a valuable one, in that it is particularly adapted to the great majority of roentgenologists who, while their material is limited, must rely upon their own interpretation of x-ray findings. For so small a volume the field is exceptionally well covered. One can find what one wants quickly in some of the numerous engravings of various types of lesions, and read how the plates are interpreted by the eyes of an expert of wide experience. The description are to the point and the book is well illustrated. Snively.

The Allen Starvation Treatment of Diabetes. With a Series of Graduated Diets. By Lewis Webb Hill, M. D. Junior Assistant Visiting Physician, Children's Hospital, Boston, etc. and Rena S. Eckman, Dietitian Massachusetts General Hospital. 1911-1916. 4th Edition, 140 Pp. W. M. Leonard, Boston, 1921.

The successful treatment of diabetes, according to the Allen method, is widely known. One of its difficulties is the detailed knowledge of food composition and caloric values that is required. This book furnishes the needed information. The author states that is is not enough simply to cut down the supply of starchy foods. The physician must know approximately how much carbohydrate and protein the patient is getting daily. This book presents illustrative cases and many diabetic tables. One list contains the relative percentage of protein and starch of the various diabetic foods on the market. SMITH

Surgical Clinics of North America. April, 1921. Vol. 1, No. 2. New York Number. Published Bimonthly, W. B. Saunders Co. Philadelphia and London. 1921.

Cases of exophthalmic goiter, cystic adenoma of the ovary, duodenal ulcer, chronic suppurative mastitis and chronic cholecystitis are presented by Dr. Erdmann, and occupy first place by reason of his prominence as a surgeon, but some of the cases are discussed in altogether too meagre a manner. The contribution by Dr. Gibson on pneumococcus peritonitis is, however, a great contrast and is a masterly presentation of the subject in all its aspects. Operative treatment is advised, since a positive diagnosis can not be rapidly arrived at and is made by finding a positive blood culture. The disease occurs in girls chiefly and at operation a large amount of free milky fluid is found in the belly. The belly is drained with a rubber tube in the pelvis and type I pneumococcus serum is given, unless the presence of other strains is found. There is an interesting contribution by Dr. Pool on complete removal of complete cervical rib and many instructive and well discussed cases are presented by Dr. Hartwell. Dr. Heyd at the Post-Graduate Hospital also contributes many valuable discussions, notably on chronic appendicitis and gall-bladder pathology. The number is well up to the usual standard and no medical publications are more practical, interesting or valuable and approximate more nearly to actual clinical teaching by masters than any other forms of medical literature.

WINSLOW

Unrinary Analysis and Diagnosis. By Microscopical and Chemical Examination. By Louis Heitzmann. M. D. Formerly Professor of Pathology and Bacteriology, Fordham University School of Medicine. Fourth revised and enlarged edition, with 131 Illustrations. 362 Pp. $4. William Wood and Company, New York. 1921.

This book is intended as a purely practical one. Tests are given which can be used without the necessity of a complete chemical laboratory. No extensive changes have been made in this fourth edition. New useful and pratical chemical tests have been added. Part III describes the different diseases of the kidney, bladder and sexual organs, with urinary features found in each, following a description of causes and clinical symptoms. It is a useful book for the laboratory worker and general practitioner. SMITH

Human Heredity. By Casper L. Redfield. 107 Pp. $1.50. Heredity Publishing Company, Chicago. 1921.

The main argument of this book is to prove the superiority of children born of parents of mature years. Many historical instances are cited of leaders in science, art and statemanship who were the young offspring of aged fathers. He would improve the race by preventing the marriage of boys and girls with consequent progeny from these young parents. SMITH

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ORIGINAL CONTRIBUTIONS

BLOOD TRANSFUSION IN CHILDREN. ITS INDICATIONS AND LIMITATIONS. FROM AN ANALYSIS OF 600 CASES.*

Bruce Robertson, B. A., M. B., F. A. C. S.
Alan Brown, M. B.
Roy Simpson, M. B.
TORONTO, ONT.
From the Wards and Laboratories of the Hospital for Sick Children, Toronto.

There must be few, indeed, who would fail to acknowledge our present inability to determine the etiology of disease, but none who would fail to recognize the fact that the causative agent or agents are transferred to their ultimate sphere of activity thru the blood which we know to be a complex nutritive medium, containing, besides the elements of nutrition and stimulators of growth, protective or antibodies, and in addition, the little understood etiologic factors of disease. Death or recovery may take place thru the complete or incomplete ascendency of one of these over the other. Thus, one may readily assume that the tide may be favorably turned by supplying the host with an extra amount of complement or germ combative agents. If this assumption is correct, in spite of our ignorance of the etiologic factors of disease, one need not remain helpless but at least temporarily resort to blood transfusion in order to supply what we consider the best nutritive antitoxic and antimicrobic agents known to us. Bearing these facts in mind, we may be able successfully to treat by this method many more diseases than we have hitherto.

From a perusal of the literature we have only been able to find two reports of blood transfusion in childhood (report of 9 cases by Kerley[1] and 13 cases by Lowenburg[2]). This, of course, does not include hemorrhage of the new born. It is, however, not the purpose of the paper to review the literature but to present a study of our cases with comments and conclusions, that we trust will be of assistance to those who contemplate this form of therapy.

BLOOD GROUPS.

It is now generally admitted that preliminary groupings tests should be carried out before transfusion. In addition to this, mutual cross agglutination tests provide a greater degree of safety. In a series of tests, in which the cells were grouped and mutual cross agglutination of sera and cells done, it was found that the latter test checked up accurately with the results of the cell grouping by stock sera, except in those infants where the presence of agglutinins could not be demonstrated.

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*Read before the Forty-seventh Annual Meeting of Oregon State Medical Association and Fifth Tristate Meeting, Portland. Ore., June 30-July 2, 1921.

There is no definite indication as to the time at which agglutinins and receptors appear in the infant blood. Our own investigations show that both, or the receptors only, or neither may be present at birth. Happ's[3] conclusions bear out our own findings to a great extent.

The fallacy of the old idea that familial blood was better than that of a foreign donor is shown by the results in our grouping tests of one or both parents and one child. In 56 per cent of the tests the father, and 57 per cent the mother, were in the same group as the child. In several families we have found all four groups among parents and children.

In an infant, when no agglutinins are present in the serum and the cells are in group IV (i. e. receptors absent), it must be considered a negative group, as either agglutinins or receptors may develop later. Taking these factors into consideration, we deem it necessary and advisable to have preliminary blood groupings done in all cases.

That cross transfusions have been done with perfect safety as regards life is certain. Prior to the simplification of the present technic in grouping tests, some hundred or more transfusions in this series were performed from parent to child without preliminary grouping tests. A few of these had to be stopped on account of signs of incompatibility arising and, tho in others there were slight reactions, no signs of hemolysis occurred. It is not reasonable to suppose that in these latter the groups were the same. One must conclude that any agglutinins in the recipient's serum were only weakly active.

Where emergency precludes the grouping tests and the patient would die if not transfused, it is permissible to use an ungrouped donor if the "physiologic" test is used. By this is meant the intravenous injection of 20-30 c.c. of donor's blood, followed by a delay of three to five minutes. If no signs of incompatibility arise, one may proceed with a fair degree of safety. Signs of incompatibility are pulse disturbances, respiratory change, lumbar pain, dilatation of pupils, circumoral pallor, flushing of the face and possibly sudden urticaria.

Group IV has been looked upon as the universal donor but, where feasible, a similar group should be used, since it may be necessary to give blood to such an amount that the group IV serum may not be diluted to safe proportions.

TECHNIC.

Much has been written and is still being written about simplified technic. After a fair trail of the direct, syringe-cannula, citrate, Kimpton-tube, and three way stopcock methods, we have come to the conclusion that for the majority of cases the syringe-cannula (Lindeman) method with slight modification is the most applicable. For certain cases, in which the circumstances of the operation or the type of disease (septicemias or in exsanguination-transfusions, see later) require it, we use citrated blood, collected in 100 c.c. ground glass syringes (Abelmann).

For the ordinary transfusion we use six 20 c.c. ground glass syringes, lubricated with liquid paraffin. The recipient's cannula is a no. 19 tempered gold serum needle with the point, but not the bevel, rounded off. To donor's and recipient's cannulae respectively is attached a two inch pure gum rubber tube, armed with a metal tip which fits the hub of the cannula. This greatly simplifies the withdrawal or injection of blood. The operative technic is too well known to necessitate description. For transfusion with citrated blood a 100 c.c. ground glass syringe containing 10 c.c. of 4 per cent freshly prepared sod. citrate is used and filled to the 100 c.c. mark with blood. As each syringe is filled, it is up-ended several times and laid aside till the required amount is obtained.

The introduction of the blood even in the youngest infants is most effectively accomplished thru the exposed internal saphenous vein over the internal malleolus. This vein is more constant in position, larger and thicker than the elbow veins. If it cannot be seen, it can usually be palpated and feels just like a small vas deferens when rolled under the thumb nail. In any case it can be exposed by an incision across its course over the internal malleolus. It is without question from every point of view the simplest site for injection. Transfusion in the longitudinal sinus is to be condemned as being too hazardous a route for injection of any quantity of blood. The absolute control of the needle in the longitudinal sinus is not easy with any form of apparatus. In some other clinics the distal end of the ligated internal jugular vein is used in infant recipients. We can see no justification whatever for transfusion by this route. We have tried all these routes of injection and have now adopted, practically as a standard, the internal saphenous vein over the malleolus in cases where the elbow veins cannot readily be seen.

EXSANGUINATION-TRANSFUSION.

The rationale of this procedure is briefly this. The withdrawal of blood mechanically removes a certain amount of circulating toxin or bacterial infection and makes room for its replacement by fresh non-toxic blood, containing fresh complement and possibly immune bodies present in normal adult blood. The component parts of this procedure are of ancient vintage but the combination of the two is of more recent date. Mosenthal[4] has used this procedure in nephritis and its possibilities have been referred to by several other writers.

The technic of exsanguination-transfusion deserves special description. After preparation for the transfusion, blood is withdrawn from the patient until there are beginning signs of blood loss. Where the anterior fontanelle is open, blood may be withdrawn from the longitudinal sinus. In older children we have used the external jugular, femoral vein (a cannula being introduced thru the proximal part of the saphenous vein) or the radial artery. (It is impossible to obtain any considerable quantity of blood from the superficial veins of the extremities in a child under five years of age, particularly if the circulation is sluggish.) The transfusion is then commenced, the donor's blood being introduced by the great saphenous vein over the internal malleolus, while further exsanguination is being carried out carefully. In an infant it is obvious that only a small amount of blood (up to 80 or 100 c.c.) can be withdrawn before the transfusion must be started, so that, after the commencement of the transfusion, the blood withdrawn from the patient must contain an increasingly large percentage of the transfused blood. Notwithstanding this, it is apparent that a considerable amount of the patient's own blood is withdrawn during the procedure and it would seem to have been sufficient in many cases to have removed enough of the toxin or bacterial content to have turned the scales in favor of the patient.

The transfusion is carried out preferably with 100 c.c. glass syringes, as by this method a large supply is more immediately available. It is a wise precaution to have adrenalin on hand for intravenous injection, should any signs of collapse occur during the exsanguination. If during the exsanguination the margin of safety has been too closely approached and the pulse fails, the transfusion should be begun immediately and m. 3 to m. 8 of adrenalin 1-1000 be given intravenously. This is best done by introducing the hypodermic needle into the rubber tubing connecting the citrate syringe with the cannula in the vein. The immediate effect of the adrenalin is to produce a sudden blanching of the face, followed by a few coughs. The pulse improves almost instantly.

Amount of blood to be given. As a working rule the amount of blood to be transfused should not exceed 16 c.c. per pound of body weight in a child below two years of age. For older children the amount to be given is smaller in proportion to the body weight. As the end of the transfusion is approached, the recipient's color should be carefully watched. When the face has become a healthy pink color or if the veins of the neck become distended, the transfusion should be stopped. The injection of blood should never be continued till the recipient's face is cyanosed.

In exsanguination-transfusion the amount of blood which may be withdrawn prior to the commencement of the transfusion varies within wide limits. It is dependent upon the state of the circulation. In some cases only 30-40 c.c. have been withdrawn before there are definite signs of blood loss; in others up to 100 c.c. have been removed before it was necessary to commence the transfusion. The amount of blood given over and above that withdrawn is the usual amount for a child of that age, unless otherwise indicated. The total amounts withdrawn have ranged from 100 to 300 c.c.

Rate of Injection of Blood. In order to avoid mechanical reactions, blood should be injected slowly rather than quickly. With any method involving the transference of blood by means of syringes one is apt to inject the blood too rapidly. One should endeavor not to inject more than 100 c.c. in three minutes.

REACTIONS.

Reactions following transfusions may be of two kinds, serologic and mechanical. In the first instance any serious reactions may be ruled out in practically all cases by preliminary grouping tests, or mutual cross agultinations or both combined. Our own results and those of others have shown that the preliminary grouping test is a practical tho not absolute safeguard against reaction due to hemolysis. It is probable that in rare instances there are certain blood incompatibilities not discoverable by the present tests. These, however, must be very infrequent and for practical considerations may be discounted when one considers the value of blood transfusion.

When a group IV donor is used for a recipient in another group, severe and even fatal reactions may occur, if a large amount of blood is given. This, however, may be explained by the non-dilution of the group IV serum and its consequent agglutination of the recipient's cells. For this reason we have endeavored to use only a donor of the same group as the recipient, where one is obtainable. Failing this, a group IV donor has been used. In transfusion of this sort (group IV to the other group), some minor reactions have occurred and two, which proved fatal).

H. M., age 11 weeks, weight 7 lbs. 6 oz. Diagnosis, decomposition. Patient in very poor general condition. Donor, mother (gr. IV), recipient in group II. 100 cc. of blood transfused when cyanosis and dyspnea developed. This was followed by repeated attacks of dyspnea. Hemoglobinuria and jaundice twenty-four hours later. Collapse and death in twenty-seven hours after transfusion.

Autopsy showed blood stained fluid in both pleural cavities, petechial subpleural hemorrhages and hemorrhages in suprarenals, spleen large, liver and kidneys congested.

H. B., age 35 years. Diagnosis, empyema and secondary anemia. Father and mother in group IV, child in group II. Transfusion of 250 c.c. of blood in seven minutes. About one minute after the transfusion had been finished urticarial eruptions appeared on the neck and increased rapidly in extent. It was followed quickly by cyanosis, dyspnea and convulsions, death occurring about three minutes after the onset of the reactions. No autopsy was obtainable.

In the first of these two cases the reaction was undoubtedly a group reaction. In the second case it appeared to be more in the nature of an anaphylactic shock, since death occurred too rapidly to be due to ordinary group incompatibility.

The mechanical reactions may be of two kinds. An excessive amount of blood will overfill the circulation and may cause acute cardiac dilatation, particularly if the myocardium is weak. A smaller amount of blood, if given too quickly, may cause distension of the right heart and cyanosis which may persist for some hours.

In cases of severe prolonged anemia, where the patient's blood is "watery," a massive transfusion may so overfill the circulation that equilibrium is only established by transudation of the watery constituents of the patient's blood, and an acute pulmonary edema results. This, however, is much less likely to occur in children than in adults on account of the resiliency, as it were, of the former's circulation.

TRANSMISSION OF DISEASE.

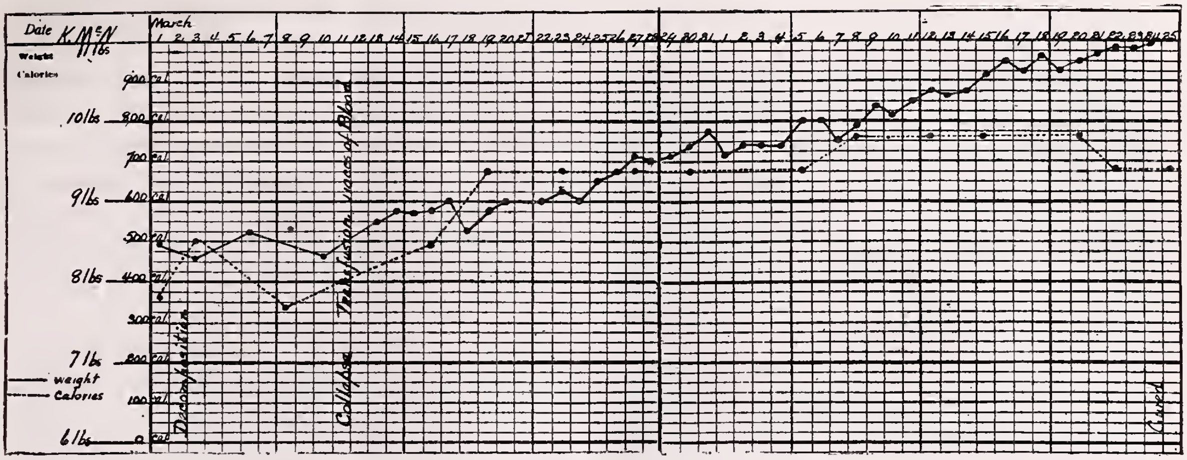
The necessity for a preliminary Wassermann test usually does not arise when the donor is a parent, but in the case of a foreign donor should be done if time permits. Other diseases, such as malaria, etc., should also be ruled out. In one case in our series the virus of smallpox was apparently transmitted and resulted fatally. The father who acted as donor was in the incubation period at the time of the transfusion and the infant had been in the hospital, not visited by parents or otherwise exposed to the infection, for six weeks prior to transfusion.

NUTRITIONAL DISTURBANCES.

(a) *Decomposition or Marasmus.* In this group there were 87 cases transfused, with a mortality of 45 per cent. Some idea of their desperate condition may be gained by the facts that 20 per cent of these cases were in a collasped state at the time of transfusion and at an average age of five months, weighing 7 pounds. It is interesting to note that of the collasped cases 43 per cent made a complete recovery. In another statistical study of a similar series, including transfused cases of decomposition, the mortality was 57 per cent, while of the moribund cases in this group 82 per cent died.

The average red count previous to transfusion was 3,500,000 with 60 per cent hb. This was raised on the average to 5,000,000 with 80 per cent hb. It will thus be seen that most of the cases had a moderate degree of secondary anemia. It was further observed that those cases exhibiting no anemia benefited little from transfusion.

In the great majority of the cases there was no immediate change in the weight curve but a definite general improvement, as manifested by an improved tolerance for food and a lessened tendency to develop a subnormal temperature. In a few instances, however, the transfusion effected a stimulus sufficient to cause an immediate rise in the weight curve. Not infrequently, as in the case cited, the injection of the blood was undoubtedly a life saving factor.

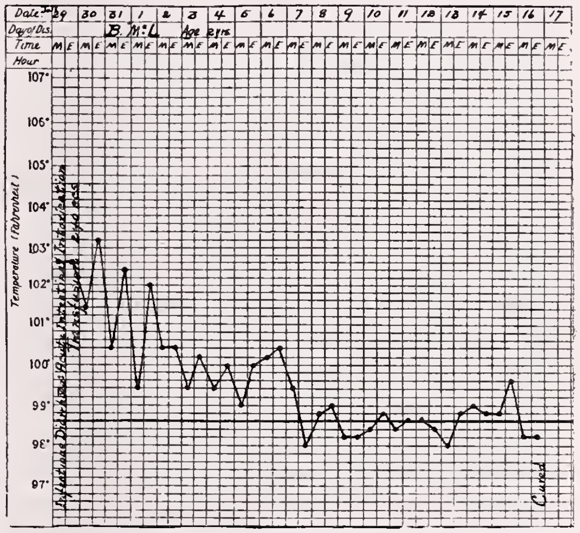


DECOMPOSITION.

Chart 1. Kenneth McNevin. Age 6 months. Weight 8.5 pounds. Admitted Feb. 29. This patient had been breast fed for two months and then on the various patent foods until admission, when he weighed only 5 pounds more than at birth. He was observed in the hospital for twelve days, during which period his digestion was good but there was no gain in weight. At this time he suddenly collapsed and became moribund, necessitating an immediate transfusion of 110 c.c. of blood. He recovered rapidly from the collapse and in the subsequent days gained steadily.

In not a few cases of extreme decomposition one has to resort to all available therapeutic measures. We believe that, as a result of our observations, transfusion judiciously used is a most potent weapon in dealing with severe cases of decomposition associated with a mild degree of secondary anemia. Any remedy which will reduce the mortality of this digestive disturbance from 57 per cent to 45 per cent and of the moribund cases from 82 per cent to 43 per cent is worthy of serious consideration.

(b) *Acute Intestinal Disturbances.* Under this heading we are including cases of fermentative diarrhea, infectious diarrhea, acute intestinal intoxication with or without an associated acidosis. In this series there were 108 cases with a total mortality of 59 per cent. All of the cases in this group were either seriously ill or moribund. In another statistical study of both transfused and untransfused cases, all of whom were in a serious condition, our mortality was 84 per cent. In two instances of extreme prostration, exsanguination-transfusion was performed with one recovery. In all cases that recovered the beneficial effect was noticed immediately. The most striking instances of recovery took place among those who were profoundly toxic, while a very beneficial effect was also observed in severe cases of infectious diarrhea. The material benefit of the injection of fresh blood in infections of this type is obvious. In fermentative diarrhea the chief benefit was obtained in those with some associated anemia, in which there appeared to follow an improvement in toleration for food.



INFECTIOUS DIARRHEA.

Chart 2. Barbara McLaren. Age 2 years. Admitted July 28. This patient was admitted in a critical condition, having been suffering from a Hiss-Russel dysentery infection for the previous ten days. Eyes sunken, dehydrated and very drowsy. It was thought imperative that she have a transfusion, so the father who was in group II was used. Child was group IV. Cyanosis, cough and dyspnea developed after 30 c.c. had been injected (group reaction), so transfusion was stopped. On the following day 240 c.c. were given from a group IV donor with no reaction. Following this she made a rapid complete recovery.

In several instances of severe acidosis in children over two years, where alkaline therapy together with intravenous glucose injections seemed unsuccessful, the introduction of fresh blood undoubtedly saved the child.

Clement. 3 years of age. For three hours subsequent to transfusion he had pronounced symptoms of acid intoxication, a-cyanotic dyspnea, carbon dioxide tension of 22, extreme restlessness, thrashing about in bed, eyes sunken and covered with a film, abdomen sunken and altogether in a collapsed state. Following transfusion of 200 c.c. of alkalinized blood, there was almost an immediate and instantaneous improvement. The following morning the child was looking at a picture book and taking notice of its general surroundings. The alkalinization of the blood was of very problematic benefit.

With exception of the cases of fermentative diarrhea, in which there was a mild degree of secondary anemia, the cases were transfused irrespective of their red blood and hb. content.

From a study of this series, in which the mortality has been reduced from 84 per cent to 59 per cent, we feel justified in concluding that transfusion of whole blood is to be recommended in all cases of fermentative diarrhea of a severe degree. Those with an associated anemia will certainly be benefited, altho not to the same extent.

(c) *Pyloric Stenosis.* For purposes of emphasizing the condition we have separated this group from the series on decomposition. In this group we had 38 cases with a mortality of 18 per cent, while out of our total cases of pyloric stenosis, numbering 62, our mortality was 19.2 per cent, as compared with Spence and Goldbloom's figures from the Babies Hospital, New York, (April, 1920), of 19.6 per cent. The difference of one-half per cent in mortality does not warrant definite conclusions being drawn. We feel, however, that some cases undoubtedly would have died if transfusion had not been performed which, of course, would have raised our mortality figures. The great benefit appeared to be in the infants' more rapid progress, following operation, as manifested by fewer feeding difficulties, accompanied by more substantial gains in weight.

BLOOD DYSCRASIA.

(a) *Hemorrhagic Disease of the New-Born.* The mortality in the hemorrhagic disease of the new-born ranges from 35 to 87 per cent. The futility of most of therapeutic measures in the hemorrhagic disease of the new-born is thus shown by the high mortality. Recently, however, several measures have been advocated which have given more promising results, the most efficient of these being transfusion of whole blood. The subcutaneous injection, while simpler than blood transfusion, is not without hypothetic objections. The formed elements possibly act as foreign material and must be broken up and excreted. The hemorrhages are of varying severity and are due to a still undecided etiology; probably some of the cases recover spontaneously and this is indicated by the number of therapeutic measures which have given favorable results in isolated cases. The true value of any therapeutic agent can be judged only by a large series of cases.

The great theoretical and practical objection of all methods, save transfusion, is the fact that the hemorrhage is stopped but the amount of blood lost is not replaced and, while admitting this may not be of decided import in many cases when the hemorrhage is small, it is of vital importance when the amount of blood lost is large and the infant almost exsanguinated. In our experience we are cognizant of two cases, where initial transfusion would have prevented later trouble. In one instance after a moderate hemorrhage a severe degree of atrophy or marasmus set in and in another the child had suffered from chronic indigestion for almost a year, which promptly vanished after blood transfusion. If the transfusion had been performed in the initial stage, it is reasonable to assume that neither of these lives would have been jeopardized.

Infants are susceptible to the effects of hemorrhage. A baby of eight pounds is estimated to have a total quantity of a little more than eight ounces. Since a dog cannot always survive a loss of one-half the total quantity of blood, it is fair to assume that the loss of an exsanguinated infant is about one-half the total quantity. Thus we feel, in dealing with hemorrhagic diseases of the new-born, it is not safe to temporize too long with measures which may check the bleeding but cannot relieve the anemia. Hence the advantage of transfusion over serum injections.

Total number of cases 43. Mortality 2.3 per cent. There were no recurrences. All cases of hemorrhage of the new-born were cured, save one which succumbed to extensive cerebral hemorrhage

Transfusion, then, is the best and the most rational treatment. While subcutaneous injection of blood may at times stop hemorrhage, it does not replace the amount of blood lost. The average amount of blood injected is 15 c.c. per pound of body weight. Average age two days. Transfusion should be performed even if the child is moribund, because many cases apparently hopeless have been revived. It is never necessary in true hemorrhagic disease to repeat the transfusion. In our opinion it is useless to temporize with other methods of less therapeutic value.

Robert Patterson, age 10 days, weight 5 lbs. 8 ounces. Admitted Nov. 19. Was brought to hospital on account of uncontrollable bleeding from the umbilicus. Was observed for twelve hours in the hospital, during which time three large dressings were saturated with blood. A transfusion of 100 c.c. of paternal whole blood was done and bleeding immediately ceased. R. b. c. before transfusion was 3,200,000, hb. 40 per cent. After transfusion r. b. c. 4,552,000, hb. 75 per cent.

(b) *Hemophilia.* In this group there were 8 cases. Transfusion in this condition replaces blood lost and is a temporary measure in stopping hemorrhage but certainly is not a cure for the condition. A number of the cases were transfused on several occasions but so far no deaths have occurred. Average r. b. c. before 2,517,000; average hb. before 53 per cent. R. b. c. after 4,679,000; average hb. after 70 per cent.

Peter Blanc was first seen in Aug. 1914, when he had several slight hemorrhages from mouth and ears. Hemoglobin at this time was 58 per cent and hemorrhages were easily controlled. A definite family history of hemophilia for past three generations was obtained. Was next seen Nov. 9, when he had had uncontrollable bleeding from the mouth for six days. R. b. c. 2,750,000, hb. 20 per cent, coagulation time 13 minutes. On Nov. 15 he was given 320 c.c. of blood by transfusion. The r. b. c. was 5,525,000, hb. 5 per cent and coagulation time 3 minutes.

There was no further hemorrhage until Jan. 8, 1915, when it commenced again. At this time r. b. c. was 2,600,000 and hb. 48 per cent, coagulation time 11 minutes. On Jan. 9 was transfused again, 385 c.c. Following this r. b. c. 4,400,000, hb. 76 per cent, coagulation time 7 minutes. During the following week he had several hemorrhages from the frenum of the upper lip, and during the next twelve days bled frequently from the mouth, ears and nose. R. b. c. 1,770,000, hb. 30 per cent, coagulation time 10.5 minutes at this time. (Jan. 29).

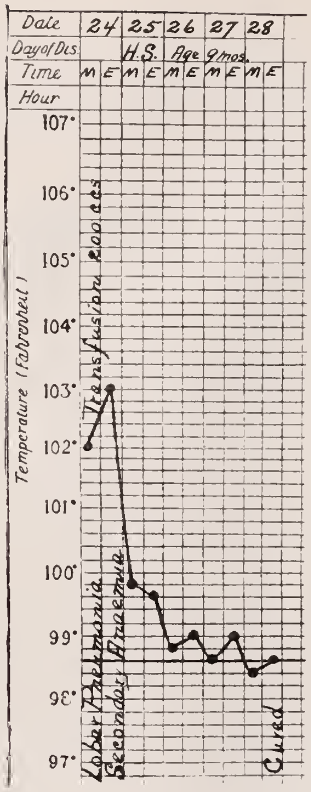
On Feb. 5, he was given 280 c.c. of blood from an unrelated donor. Following this the r. b. c. was 3,900,000, hb. 48 per cent. Patient had frequent hemorrhages from the nose during the following five days, after which all bleeding ceased and he was discharged on Feb. 20. In March and Oct. patient had slight bleeding from the nose but transfusion was not warranted. No further report of any bleeding.

(c) *Purpura* (*Infectious*). As the cause of purpura is not known, we do not consider that transfusion is a permanent cure. The fact remains that of the four transfused no recurrence took place, barring one instance, but a second and a third transfusion apparently arrested the condition. All of these cases had definite tonsillar disease which was attended to later on.

Alan King, age 15 months, weight 24 pounds admitted Jan 11. Diagnosis, purpura. Child was covered with purpuric spots, varying from 25 to 15 inches in diameter. The child appeared acutely ill. Blood groups—father II, child IV. The father being the only available donor at the time, he was used as donor for the transfusion of 130 c.c. of whole blood. During the transfusion the child began to cough and became cyanosed but no urticarial eruption appeared; 130 c.c. of blood were withdrawn during the process which relieved the cyanosis instantly. The eruption faded very rapidly during the subsequent six days, when it returned. Transfusion was repeated, using father as donor again. This time the cyanosis and dyspnea occurred when 10 c.c. only were given. Urine showed hemoglobin present for several hours. On the following day the child was transfused from a group IV donor with no evidence of reaction. Purpuric eruption disappeared in about ten days and has not recurred since. In the meantime, however, the tonsils were removed, as this was thought to be the source of the infection.

(d) *Secondary Anemia.* In this series there were 63 cases with a mortality of 9 per cent, the deaths in this series occurring from intercurrent conditions, such as acute respiratory infections and acute intestinal upsets. The average age in this group was approximately one year and the average weight 13 pounds. The chief causes of the anemia was found to be due to malfeeding, such as in rickets, prolonged breast feeding, etc. Average r. b. c. before 3,800,000, hb. 50 per cent; average r. b. c. after 4,520,000, hb. 70 per cent. Average amount given, 154 c.c.

The great advantage to be considered in transfusion in this group is that the anemia is immediately combatted, thus affording these delicate infants further protection against parenteral infections. It is our opinion from observation in this series of cases that the correction of the anemia by transfusion is more sure and more reliable than by dietetic measures which, as we all know, are fraught with considerable risk of an intestinal upset. For purposes of illustrating the point at issue we cite two cases, one that was transfused with a brilliant recovery, the other not transfused and showing no progress.



UNRESOLVED LOBAR PNEUMONIA.

Chart 3. Howard Seath. Age 9 months. Weight 8 pounds. Admitted Feb. 24. This child had had lobar pneumonia for one month previous to admission, during which time he became very pale. Chest showed dulness and bronchial breathing in left axilla. Temperature before transfusion 103° F. Red blood cells numbered 2,000,000, hb. 30 per cent. On the day following transfusion of 200 c.c. of whole blood from the mother. the temperature was 98° F. and the area of dulness in the chest was disappearing; moist rales were present in great numbers. At this point the r. b. c. was 3,800,000 and hb. 65 per cent. The chest became normal and the child's general condition continued to improve thruout his stay in the hospital.

Selma Bartlett. Age 15 months, weight 19 pounds, admitted Oct. 4. Was nursed for nine months. Since that time had milk and water dilutions without any other food. Child was extremely pale but had no other abnormalities. Was transfused on Oct. 5, being given 300 c.c. of whole blood. R. b. c. before transfusion 1,100,000, hb. 30 per cent; r. b. c. after transfusion 3,800,000, hb. 64 per cent; r. b. c. two weeks after transfusion, 4,600,000, hb. 88 per cent. This third count illustrates the stimulating effect that transfusion exerts on the hemapoetic system.

(e) *Respiratory Infections with an Associated Secondary Anemia.* In this group there were 45 cases with a total mortality of 22 per cent, deaths being due to bronchopneumonia, meningitis, mastoiditis, empyema, etc. In this group there were 12 cases of bronchopneumonia with mortality of 18 per cent. When one considers the fact that the average mortality of bronchopneumonia in infants ranges between 35 and 40 per cent, the inference is obvious that, other factors being equal, transfusion was of material benefit, at least in this group. The causes of death in the remaining cases were septicemia, meningitis, empyema, etc. Average r. b. c. before 2, 937,000, hb. 51 per cent; average r. b. c. after 4,382,000, hb. 74 per cent. Average amount injected 150 c.c. Average age 11.5 months.

(f) *Von Jaksche's Anemia.* In this series there were 6 cases with a mortality of 16 per cent. In Monti's series (quoted by Holt) the mortality was 20 per cent. Three of our series had a second transfusion. It would of course be hazardous to draw definite conclusions in such a small series of cases. In all cases the abnormal cells disappeared from the blood with exception of the fatal case. The spleen likewise showed a notable decrease in size and the general improvement was obvious.

Kenneth Downer. Age 13.5 months, weight 11 lb. 10 oz. Admitted July 6,with a history of pallor since birth. On examination it was found that the spleen was much enlarged, being one inch below the level of the umbilicus; liver was 2.5 inches below right costal margin. The blood picture at this time was indicative of Von Jaksche's anemia. R. b. c. 2,474,000, hb. 28 per cent. The red cells showed much polychromatophilia and poikilocytosis. Many normoblasts and megaloblasts were seen. On July 10 a transfusion of 140 c.c. of blood was done. Nineteen days after this the r. b. c. was 3,-700,000, hb. 75 per cent, w. b. c. 10,200, polys 40 per cent, lymph 59 per cent, eosin 1 per cent. There were only two normablasts and eight megaloblasts seen in a whole slide. At this time the spleen was much reduced, being one inch above the umbilicus. A subsequent transfusion was performed on Aug. 16, following which the blood picture returned to normal and spleen became reduced.

(g) *Splenic Anemia.* Included in this group is splenomegaly, Gaucher's disease, Banti's disease and a probable case of a plastic anemia. In this series there were six cases and one death (aplastic anemia). In Gaucher's disease and splenomegaly the spleen was removed and the transfusions corrected the existing anemia. In all instances, except in the fatal cases, the blood picture gradually became normal. It is impossible to draw conclusions in this group.

Ross Prophet. Banti's disease. Age 6 years. Admitted Feb. 23. Had had several gastric and intestinal hemorrhages for forty-eight hours before admission and when first seen was very much exsanguinated, extreme pallor, air hunger, restlessness, imperceptible pulse. Was transfused at once,

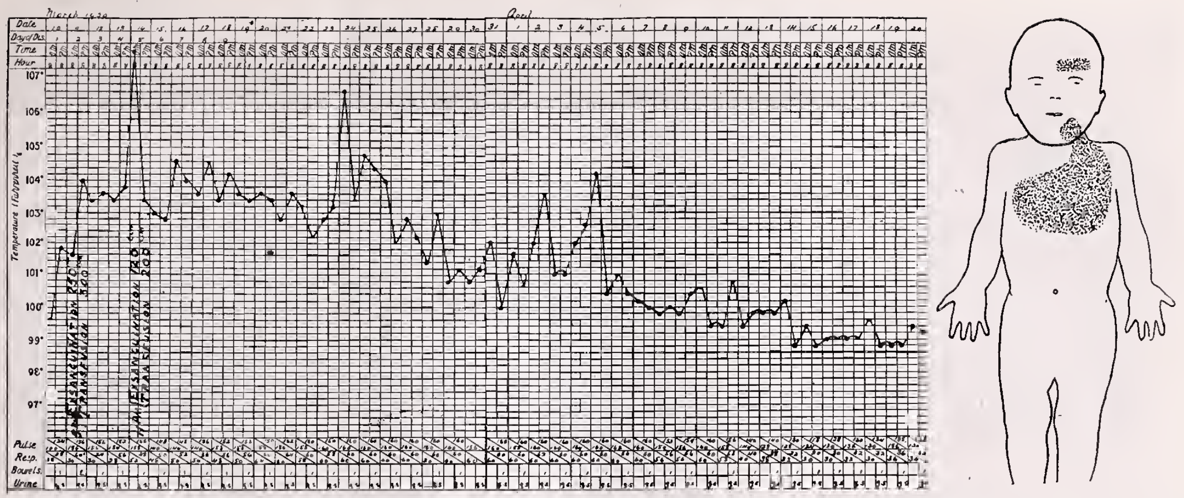


Chart 4.- Illustrating in a typical case of burn toxemia, the prolongation of the temperature being due to a complicating bronchopneumonia.

500 c.c., during which he became very much brighter, pulse could be felt readily and was of good volume. It was inexpedient to do a blood examination before the transfusion, but on the following day the red cells numbered 2,160,000 and hb. 46 per cent. The spleen was enlarged, being two inches and the liver one inch below the costal margin. On March 1 it was noticed that the abdomen was distended and signs of fluid in the left flank. Altho there had been no recurrence of the bleeding, the patient was paler than before, so another transfusion of 160 c.c. was given. R. b. c. before 1,480,000, hb. 35 per cent; r. b. c. after 2,400,000, hb. 65 per cent.

On March 3 the abdominal fluid had increased and paracentesis was done, 700 c.c. serous fluid being withdrawn. This abdominal distention was accompanied by dilatations of superficial abdominal veins and cough. On March 6 the fluid was recurring. W. b. c. 6,200, polys. 55 per cent, lymphs. 45 per cent. Thus splenomegaly, secondary anemia, leucopenia and ascites were the chief signs and a diagnosis of Banti's disease was made.

Feb. 16 another transfusion of 380 c.c. was given as a preparation for splenectomy which was done on March 22. Spleen when removed weighed 480 gm., very hard. The liver was noted as being somewhat cirrhotic. Immediately following the operation 200 c.c. of blood were given by transfusion, after which r. b. c. was 5,018,000 and hb. 95 per cent. The patient has had frequent blood examinations since, all of which have been normal. He is now in perfect health.

(h) *Leukemia.* In this series there were 5 cases with 4 deaths and one we were unable to follow to a satisfactory conclusion. Transfusion and repeated transfusions were without benefit.

TRAUMATIC AND POSTOPERATIVE SHOCK.

The immense value of blood transfusion in shock associated with hemorrhage is unquestionable. In operative cases, where the risk is considered poor, as in certain cases of hare-lip, pyloric stenosis, severe injuries of abdomen or extremities, etc., blood transfusion before or after operation diminishes, and in some cases removes the element of shock which might otherwise be fatal. Where there is any possibility of a transfusion being necessary, we have the donor grouped ready before operation.

For the relief of lowered blood pressure, due to prolonged traumatic shock which is merging into secondary shock, there is nothing to equal the injection of whole blood. Saline solution given intravenously leaves the circulation within half an hour. Gum acacia solutions raise the blood pressure but cannot be relied upon to carry on the functions of the lost blood, tho they are infinitely better than saline. The experience of one of us (B. R.) in this type of case in war surgery has only served to emphasize more strongly its value in shock. Where toxic shock is present in an operative case, such as a severe intussusception, the indication for transfusion is of almost equal importance.

TOXIC SHOCK OF SUPERFICIAL BURNS.

In this group are placed those cases of superficial burns, in which a very definite toxemia was evident. This is the type of case in which the primary shock is as a rule not severe and the burn, tho fairly extensive, is not deep, but in the course of twenty-four or thirty-six hours the temperature rises (105° or 106°) and a convulsion occurs. The occurrence of a convulsion in our expereince has without exception signified a fatal issue under any other form of treatment. That it is due to toxic

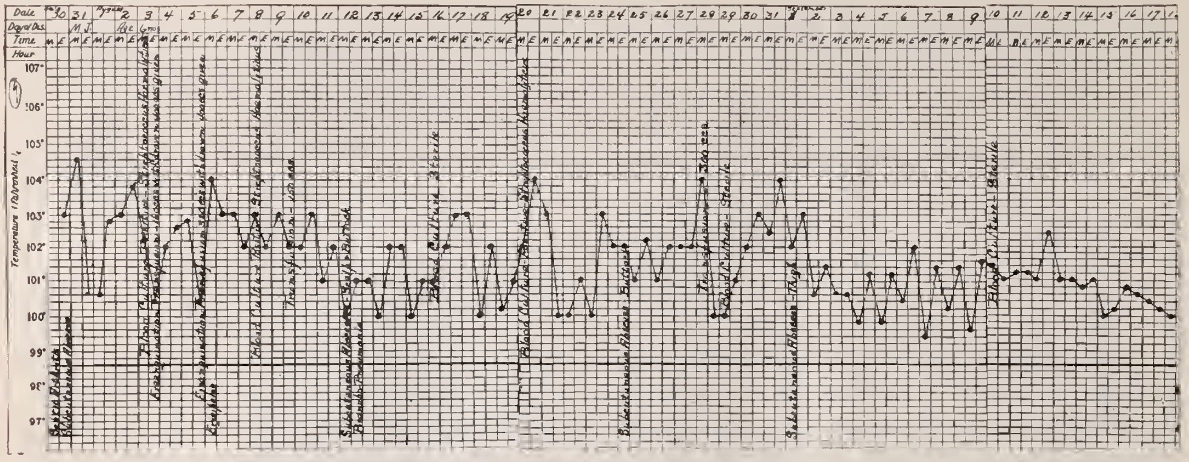


Chart. 5. M. J. Diagnosis pyemia and septicemia. Three positive blood cultures (streptococcus hemolyticus), followed by two sterile cultures. Two initial exsanguination-transfusions, followed by a simple transfusion one month later, were performed. This child made a complete recovery.

absorption into the blood from the burned skin has been shown by previous workers and corroborated by the experimental work of one of us (B. R.), to be published later.

Of this group there were eight cases with five recoveries. Of the three fatal cases, one died in convulsions, the burn involving the whole of the front of chest and abdomen. Two died from bronchopneumonia, one of which followed inhalation of flames. Of the five recovered two received straight transfusions, and three cases repeated exsanguination-transfusions. We are convinced that the latter procedure offers the best chance for this type of toxemia. By means of this therapy the mortality has been reduced from 100 per cent to 38 per cent.

PYEMIA AND SEPTICEMIA (NOT INCLUDING ERYSIPELAS).

In this group there were 29 cases, only 8 of which recovered. In only 13 cases were positive blood cultures obtained, 8 having streptococcus hemolyticus and 5 staphylococcus pyogenes aureus as the infecting organism. Of this group of 13 cases, with positive blood cultures, 5 recovered, 3 of which had streptococcus and 2 staphylococcus in the blood. It was often necessary to transfuse more than once, the average number in the cured cases being three. Exsanguination-transfusion was done in only 4 cases in this group, 2 of which recovered, the average amount of exsanguination being 390 c.c. It is our impression that transfusion was a life saving measure in some of these cases, as the improvement seemed so closely related to this procedure.

ERYSIPELAS

	Non-Transfused		Transfused	
	Cases Died	Cases Recovered	Cases Died	Cases Recovered
Under 1 month	5	1	1	3
1-12 months	13	14	0	12
Total	18	15	1	15
	Mortality 56 per cent		Mortality 6.6 per cent	
Over 1 year	2	23	0	3
	Mortality 8.6 per cent		Mortality 0 per cent	

ERYSIPELAS.

In this group there were 19 cases with a mortality of 5.2 per cent. In a further analyses of 58 non-transfused cases the mortality was 34.5 per cent, including erysipelas of the new-born (i. e. under one month, where the mortality was 83 per cent). The mortality of 52 untransfused cases was 28.8 per cent. This is interesting, when compared with figures recently published by Knox in a series of 53 cases, not including new-born erysipelas. His mortality was 28.3 per cent. In a series of 13 transfused cases within the same age limit (as Knox's and our figures as above) there have been no deaths.

The mortality of erysipelas of the new-born is universally accepted as being close to 100 per cent. In six recorded cases not transfused there were five deaths. In four cases, three of which had an exsanguination-transfusion, there was but one death.

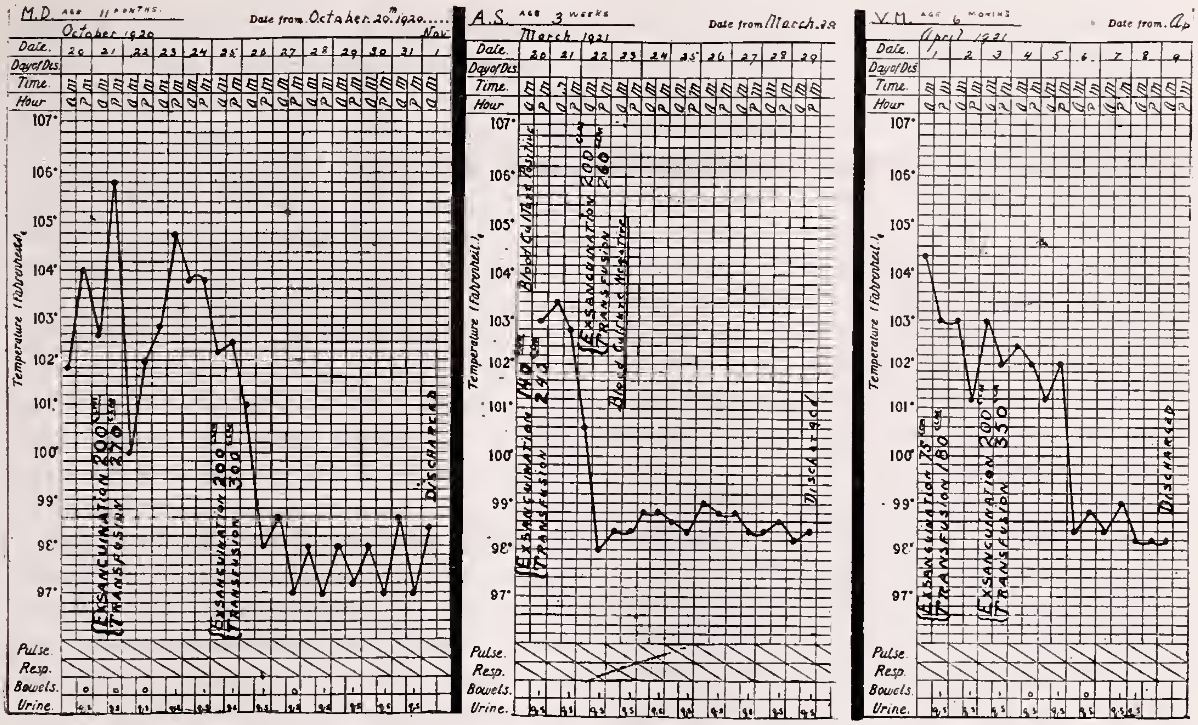


Chart 6. Three typical cases of erysipelas, cured with exsanguination-transfusion.

It is thus unquestionable that transfusion, and in the new-born more especially, exsanguination-transfusion offers a strikingly improved method of therapy.

CONCLUSIONS.

1. From our observations we have determined that some but not all of the blood groups are definitely established at birth. The groups as indicated by the reactions of the red cells may be established, altho the agglutins in the serum may not be established till later. This means that even in all new-born infants, where transfusion is contemplated, the compatabilities of the blood should be tested.

2. In 56 per cent of the tests the father and in 57 per cent the mother were in the same group as the child, while in 25 per cent of the tests both father and mother were in the same group as the child.

3. Mechanical reactions can be avoided by observing proper technic. Serious serologic reactions can be averted by proper attention to the grouping in practically all cases.

4. The syringe cannula method, taking everything into consideration, is the method of choice for transfusion in infants and children, the citrate method being reserved for selected cases, as previously mentioned. The internal saphenous vein at the ankle is the site of election.

5. The maximum amount to be transfused in children up to eighteen months should not exceed 15 c.c. per pound of body weight and in older children the proportion decreases according to the age.

6. In exsanguination-transfusion great care must be exercised, as the limit of exsanguination depends on the condition of the patient. Roughly, however, the initial amount withdrawn will vary between 30 and 100 c.c. in infants before the transfusion must be commenced. After this the amount withdrawn depends on the weight of the patient and the amount of blood available for transfusion.

7. The only benefit derived from transfusion in nutritional disturbances is in cases of severe decomposition with an associated secondary anemia and in acute intestinal intoxications. In the former group the mortality was reduced from 82 per cent to 59 per cent.

8. In the group of blood diseases our most striking results occurred in hemorrhagic diseases, with a mortality of but 2.3 per cent. Our next most striking results were obtained in uncomplicated secondary anemia. It is impossible to draw conclusions in purpura, hemophilia, von Jaksche's anemia

and splenomegaly. However, we are prepared to state that it is of no benefit in leukemia.

9. In respiratory infections with an associated secondary anemia transfusion is frequently beneficial, and even in prolonged cases of bronchopneumonia or lobar pneumonia with secondary anemia it may bring about a more rapid resolution.

10. Theoretically it is reasonable to believe that in children suffering from a bacteremia the withdrawal of a certain amount of blood and the introduction of fresh adult blood should be of benefit. We believe from our experience in this condition that cases have been saved which otherwise would have been fatal.

11. From our results in erysipelas, exsanguination-transfusion is without doubt an improved therapeutic measure for this type of infection.

12. In the toxic shock of superficial burns, where convulsions have occurred as a result of the toxemia, the mortality rate with any other form of treatment has been 100 per cent. In this type of cases we have had eight cases with five recoveries (mortality of 38 per cent). Two of the fatal cases succumbed to bronchopneumonia after the burn toxemia had been relieved. We must conclude, therefore, that treatment by transfusion, and particularly exsanguination-transfusion, offers the only hope of recovery in this type of toxemia, where convulsions have occurred.

The authors desire to express their indebtedness to Dr. R. M. Janes, resident surgeon, for performing a number of the transfusions and to Dr. H. S. Little, resident physician for assistance in the tabulation.

A CLINICAL STUDY OF THIRTY CASES OF CERVICAL ADENITIS.*

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This paper represents a clinical study of thirty-cases of enlarged cervical glands. This condition is one so familiar that I feel some hesitancy in bringing to your attention so common an occurrence. It is, however, the common things that make up the general run of our daily experience. One little realizes the total days of disability that occur in thirty children afflicted in this manner until the cases are tabulated. As a rule the child with an enlarged cervical gland, with either a high or a slight temperature, is more or less neglected at one stage or another thruout the course of the infection; early in not being put to bed and later in not being kept in bed.

Most of these cases occurred during the late summer and early fall of last year, when it might casually appear that glandular swelling of this type was epidemic. It is the condition, perhaps, sometimes observed as glandular fever. I had rather hoped not to use this term, first coined by Pfeiffer[1] in 1889, since there is grave doubt in my mind of the existence of glandular fever as an entity in the specific sense that Pfeiffer had in mind. Rather it was the period of the first lighting up in the early fall of acute respiratory disturbances, primarily of the pharynx and tonsil, with resulting invasion of the cervical gland. The majority of these infections are probably caused by some of the numerous varieties of the streptococcus. In every instance the glands would probably reach the size of a small lemon.

Duration of the Swelling. These glands come to stay in each instance far longer than the parents anticipated on first observing them and are a source of much concern after a time, especially when their ordinary course of behavior has not been explained.

TABLE 1.

Duration of swelling of glands in 21 known cases.

Under 1 week	2 cases.
Between 1 and 2 weeks	9 cases.
Between 2 and 3 weeks	3 cases.
Between 3 and 4 weeks	4 cases.
Between 4 and 5 weeks	2 cases.
Between 5 and 6 weeks	0 cases.
Between 6 and 7 weeks	1 case.

The duration of the glandular swelling in the 21 known cases was a total of 360 days, an average of 17 1-7 days for each case. There may be some induration some weeks following the disappearance of the swelling.

Duration of the Temperature. This is usually shorter by two or three days than the duration of the swelling. It may be said that, as long as there is temperature the gland, altho diminishing in size, it has all the potentiality of doing harm that it exhibited at its maximum. Further, and to a less extent, it is true that as long as gland swelling persists, altho the temperature has disappeared, elevation of temperature may occur.

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*Read before the Puget Sound Academy of Ophthalmology and Oto-Laryngology, Seattle, Wash., June 6, 1921.

[1] Jahr. F. Kinder. 27. 257. 1889.

TABLE 2.

Duration of the Elevation of the Temperature in Known Cases.

Under 1 week	3 cases.
Between 1 and 2 weeks	7 cases.
Between 2 and 3 weeks	6 cases.
Between 3 and 4 weeks	1 case.
Between 4 and 5 weeks	1 case.
Between 5 and 6 weeks	0 cases.
Between 6 and 7 weeks	2 cases.

The elevation of the temperature in the 20 known cases was a total of 312 days, an average of 15 3-5 day for each case. It will be readily observed from the above tables that apart form the anxiety to the parents there is a real economic loss of considerable proportion represented in these families.

Relation of the Tonsil to Cervical Adenitis. A perusal of the accompanying tables makes out a very clear case against the tonsil. Of the total thirty cases only two had undergone a previous tonsillecromy.

TABLE 3.

Previous Tonsillectomy in the Cervical Adenitis Cases.

Case No. 395, Case No. 1394.

Total of 2 Cases, 6.6 per cent.

The table of age incidence further establishes the case against the tonsil, since all but two cases were six years or under. Beyond six years of age it is becoming increasingly less frequent, in my experience, to find children who have not undergone this operation.

TABLE 4.

Age Incidence in 30 Cases of Cervical Adenitis.

Under 1 year	5 cases.
Between 1 and 2 years	5 cases.
Between 2 and 3 years	5 cases.
Between 3 and 4 years	6 cases.
Between 4 and 5 years	4 cases.
Between 5 and 6 years	3 cases.
Between 6 and 10 years	0 cases.
Between 10 and 11 years	1 case.
Between 11 and 12 years	0 case.
Between 12 and 13 years	1 case.

Concerning tonsillar enucleation, permit me to state that, while it is not my intention to go into it except as it is related to the subject under discussion, after nearly twelve years of clinical pediatric experience in private practice, I am firmly convinced that, along with proper feeding, enucleation in a great many selective cases is the greatest preventive agent against impaired child life which lies within our present power to exercise. During the past three weeks I have had under my personal observation four cases illustrative of this fact. Three weeks following follicular tonsillitis we see total destruction of the head of the femur in one case, pericarditis with effusion in another, acute nephritis with edema and fifteen per cent per volume of albumin in a third, and another acute nephritis with uremia and convulsions, now recovering with marked amblyopia. These things you are all familiar with and I feel that I am not telling this to the right group of people, namely those that do not know.

To return to the two cases where tonsillectomy had been done. These instances are especially disappointing to the family. The parents take the position that it should not occur under these conditions. One instance especially of a child, who previously had had no glandular swelling, about the sixth day following tonsillectomy had an enlarged cervical gland lasting fifteen days. The surprising thing is that it happens so rarely when one stops to consider the extent of the sloughing tissue in the throat four to eight days following tonsillectomy. In the other instance the tonsils were out a long time.

The Tonsillar Stump. This brings me to the tonsillar stump. There is no place for an extensive handling of it in this paper. I feel that additional public information on this point is very important at this time. I see cases of probably most of the men here and, now that we are among ourselves, let us discuss the quickest and best means of bringing about this educational feature. It is perfectly proper to say that it should not happen, if you chose to. Let it be known, however, that it sometimes happens to you as well as to the other fellow. This will help to produce a better understanding of the whole problem by the general public. I have encountered numerous instances, not in this series, of tonsillar stumps which have lead to more or less distinct and often protracted illness. This we can readily understand, but it comes as a distinct shock and keen disappointment to the parents when they learn it is from a source which they figured had been eliminated. I do not wish you to think that I find something where nothing exists, for it is one of you who has found this condition or who has confirmed me in the instance that I have in mind.

It naturally follows that, when this first feeling of disappointment and often resentment is felt by the parents, with reasonable presentation by you, someone is spared unjust criticism and someone else has a better understanding of these problems as we know them today, by that same effort. This is very easy for me to do, since I do no operating and it is my practice to send them to the man who did the work before who, I am glad to say, is in most instances a specialist. It may be harder for you to do but the effect, I believe, would be greater.

Tonsillar Enucleation During Acute or Subacute Stage. There are undoubtedly certain instances where tonsillectomy shortens the duration of the glandular swelling. In Case No. 1463, on the third day of normal temperature with gland swelling still persisting, the tonsils were removed with rapid disappearance of the gland. There is a pretty general feeling that tonsillectomy can be safely done with even slight elevation of temperature in the subacute stage of a number of different types of tonsillar infection, where the indications all point to as early an operation as is compatible with safety. The most outstanding of this group are those associated with endocarditis, myocarditis and possibly nephritis. I cannot help but feel, however, that there is a greater tendency of the last year or two to enter the stage of active elevation of temperature with tonsillectomy. Let this body make itself felt on this point, standardizing this thing, so far as this community is concerned. We cannot jeopardize so important a procedure as tonsillectomy, when so great a mass of our people have learned to respect it.

Complications. Abscess was encountered in two cases. Both of these came under our observation late. Case No. 1072 had a swelling of the right side of the neck for two weeks previous to our examination. This child, a boy of seven months of age, presents an interesting blood picture, a condition I recall, as a student, Cabot saying was often confused with a beginning lymphatic leukemia. Septic lymphocytosis is well illustrated in this case, as one in a previous paper[2], all associated with a peritonsillar abscess.

The white cell count was 60,000., mononuclear cells 55-60 per cent. The spleen, however, was not palpable. Dr. West's laboratory report was, "seems like some serious disturbance of the lymphoid tissue, malignancy or else possibly an atypical pyogenic leucocytosis." In October, 1920, when all the induration had disappeared, the white cell count was 10,000, mononuclear cells 68 per cent, polymorphonuclear cells 32 per cent. May 9, 1921, the white cell count was 6,500, mononuclear cells 68 per cent, polymorphonuclear 32 per cent. I consider this of unusual interest and hope to follow the child for some years. Whatever produced so profound a disturbance in the lymphoid tissue in the beginning must have gone, but the effect of this on the lymphoid tissue still persists, as the mononuclear cells now after seven months are even greater and nearly 70 per cent.

Has this child the potentiality for developing some day a lymphatic leukemia? Is there any relation between infection and leukemia? Ward says not. This is merely speculative. So, however, is apparently everything on etiology of leukemia up to now.

Treatment. Rest in bed from the beginning of the fever and the swelling until they have disappeared is the safest procedure. In not one insatnce, where the child was put to bed at the outset, did the gland break down. Rest in bed during any acute respiratory infection and until the temperature is normal for forty-eight hours is the greatest single therapeutic agent we have for these conditions. That there were no complications of myocarditis, endocarditis or nephritis has been attributed to the rest in bed.

Local treatment appeared to have no distinctly striking results. Icthyol 15 per cent, ice bag two hours twice daily, and heat in the form of flaxseed poultice were used at different times. Where there was pain, heat gave the most relief. In the early stages, where there was a follicular tonsillitis, 10 per cent silver nitrate in one or two applications to the tonsils appeared to shorten the duration.

Tonsillectomy was advised in each instance, where it had not been done. In most instances the parents were anxious for an early operation; and in two instances so much more so than I was that my patience outlasted theirs and they had it done anyway. It is probably more than a coincidence that one boy, whose parents refused tonsillectomy ten months ago, is today in bed with a cervical and bronchial glands tuberculosis.

217 Cobb Bldg.

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[2] Blood of Infancy and Early Childhood. Northwest Med. (New Series) 5, 147, 1912.

TEN YEARS PROGRESS IN CHILDREN'S DIETS. VITAMINES*

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The increase in dietary knowledge of recent years has come thru the laboratory, the animal house and thru observations of tragic human experience on inadequate war diets. These three factors combined would foster a rapid advance in any decade but the present one has had the added stimulus of a new discovery.

If we go back ten years in our study of nutrition we find that the subject had not advanced much for seventy years or since 1840, the time of the famous chemist Liebig.[1] Liebig, you remember, believed that the essential constituents of an adequate diet were proteins, fats, carbohydrates, certain mineral salts and water. For seventy years the chemical laboratories of the world were engaged in finding the caloric values of different foods, the caloric requirements of the human body and the best percentage combinations. Atwater[2] believed confidently that energy or calories, protein values and digestibility were the three factors which determined the combination of food stuffs so as to obtain proper growth and nutrition. But he and all other chemists back to Liebig were mistaken in believing that you could analyse foods by chemical methods and determine their full value. For years some of the deepest students of the subject felt that the chemists were at fault and in 1911 Funk[3] announced his theory of vitamines. About this time, too, the University of Wisconsin, thru McCollum and his co-workers[4], brought forth scientific proof of the accuracy of this theory.

Have you heard the story of McCollum's calves? In 1906 three groups of heifer calves were selected and placed on diets chemically equal. The fat, protein and carbohydrate contents were the same. One group was fed on corn, another on wheat and the third on oats, stalk, leaves and all being used. The calves grew and thrived and no great difference was noted until they were grown and produced young. The cows that were fed on a wheat diet from birth had calves that were born dead and weighed 40 to 50 pounds. A calf at birth usually weighs 75 to 80 pounds. The oat-fed cows had calves normal in weight but also born dead. The cows fed on corn silage had calves that were normal in every way and were on their feet in a few days. This experiment showed that when the whole plant is used corn excells wheat, altho other experiments have shown that when the kernel only is used there is little difference.

These calves opened the eyes of the world and started a new epoch. With this new foundation the laboratory workers from London to Calcutta, but especially in England and America, have made strides which they themselves could hardly believe possible. Every book on diets written before 1910 and some written since are chiefly of historic or chemical interest. McCollum might well be called the "Columbus of nutrition."

We now know that an adequate human diet is composed of two groups of substances: first, substances of known chemical composition and caloric value; second, substances of unknown chemical composition and perhaps no caloric value. The first group includes, of course, fats, proteins, carbohydrates, salts and water. The proteins best suited for growth and reproduction are the animal proteins because they contain the two necessary amino-acids, lysin and tryptophan. These are found in milk, meat and eggs, and at least one should be in the daily diet. In the group whose chemical composition is unknown are the vitamines, or, as the English call them, the accessory food factors. There are three vitamines now recognized: fat-soluble A, water-soluble B, and water-soluble C and some believe three more are awaiting discovery. Fat-soluble A is found in butter, cod liver oil, yellow suet and green leaves. If this is not in the diet one may expect rickets (Mellamby[5]) and an eye disease, xerophthalmia (McCollum and Osborne & Mendel[6]). Water-soluble B, widely distributed in plants, is the element which prevents polyneuritis or beri-beri; and water-soluble C, found in all vegetables and in most fruits, is the vitamine which prevents scurvy. All three are necessary for proper growth, reproduction and resistance to disease.

Fat-soluble A. When Dr. H. Gideon Wells went to Rumonia under the Red Cross, he found the children suffering from a lack of fat-soluble A. Their diet consisted of a limited amount of corn meal and a thin bran-vegetable soup. There was no milk or butter, as the Austrians had driven off the cows. Many of the children had xerophthalmia, sometimes so severe as to cause blindness. Cod liver oil obtained thru the American Red Cross cured the disease and saved many lives.[7]

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*Read before King County Medical Society, Seattle, Wash., Sept. 7, 1920.

A similiar disease (McCollum) is found among men in some of our Northern lumber camps, where the only fat is cured bacon which lacks fat-soluble A. This condition is known as "night blindness."

Young rats (Drummond[8]) and puppies on a diet lacking in fat-soluble A show a greatly decreased resistance to disease, many dying when infectious diseases occur. This corresponds to the increased death rate among artificially fed babies and gives us an additional reason for insisting that every baby be breast fed. In artificial feeding the percentage and kind of fat assumes increased importance. Before the discovery of the vitamines cod liver oil was given empirically in certain cases of malnutrition and rickets with results comparable to quinine in malaria. It was as interesting to learn why quinine gave results as it is to know that the value of cod liver oil varies with its content of the A vitamine. Pure cod liver oil is superior to any emulsion. Alkalinized emulsions rapidly lose their vitamine value and are then no better than cotton seed oil (Hess[9]). When we prescribe a codliver oil emulsion, it is up to us to know that it is acid.

Among foods, the most A vitamine is found in butter. It should be fresh and unheated. Egg yolk, fat fish, liver, kidney, and other glands give goodly amounts of the A vitamine[10]. It is noticeable that those parts of the animal which are eaten but little are superior in vitamine content to muscle which is eaten so much. Among the vegetables, spinach[11] has the most of this vitamine, altho carrots and peas contain some. Carrots and cabbage may be given raw if grated or chopped very fine.

Water-soluble B. Water-soluble B is found more widely distributed in plant than in animal food. Milk has only a small amount of it. Osborne and Mendel[12] warn us against a diet of white bread and milk or against feeding infants a top milk, water and sugar mixture. The use of burnt flour or starch as additions to an infant's dietary should be given with full knowledge that they contain no vitamines.

All common vegetables thus far tested are found to contain water-soluble B. This includes spinach, cabbage, carrots, cauliflower, potatoes, onions, beets, tomatoes and the cereal grains[13]. The part of the kernel which contains the most of it is the germ and not the bran, as was formerly believed[14]. The germ is usually removed with the hull, as in rice polishings and wheat bran. In other words, we have fed the active or vital part of the kernel to stock and kept the inert starch for ourselves. Yeast is the richest source of the water-soluble vitamine and next to it comes spinach and then whole wheat. Even when yeast or milk is added to white bread it does not prevent polyneuritis in pigeons (Voegtlin[15]), altho yeast delays its onset. Bread which is made of fresh whole wheat flour is, however, entirely adequate. All children, but especially the nervous ones, should have their bread and cereals made from freshly ground whole grain.

Water-soluble C. Water-soluble C is used to designate the antiscorbutic vitamine. Jackson and Moore[16] suggested that scurvy is a bacterial disease and they isolated a diplococcus from the hemorrhogic joints which seemed to be causative. McCollum[17] states in his book, "The Newer Knowledge of Nutrition" (1918), that scurvy is not a true deficiency disease like polyneuritis and xerophthalmia but is due to chronic constipation. This he says, may predispose to bacterial invasion. Chick, Hume and Skelton[18] have shown that these earlier conclusions were wrong because of an uncontrolled milk intake and consequent variable vitamine content in the diet of the experimental animals. It is now generally accepted that constipation has nothing to do with it but that the absence of a sufficient amount of water-soluble C is the cause of scurvy.

This factor is present in living vegetables and animal tissues, in largest amounts in fresh fruit and green vegetables, to a less extent in root vegetables and tubers. It is present in small amount in fresh meat and milk and has not been detected in yeast, fat, cereals, pulses. The antiscurvy food factor is sensitive to high temperatures and suffers destruction when the living tissues, in connection with which it is produced, are disorganized by drying or other methods of preservation[19].

Orange juice has become the standard antiscorbutic, altho, according to Chick*, if we consider orange juice as 100 per cent, cabbage juice would be about 100 per cent and fresh milk 1.5 per cent.

Cooking of vegetables diminishes or entirely destroys their efficiency, except when they (carrots for instance) are young (Hess[20]). Cabbage[21] cooked for one hour at 90° lost over 90 per cent of its antiscorbutic value. The water in which the vege-

*Personal communication.

tables are cooked contains no noticeable trace of this vitamine[20], altho it does contain some of the salts. Alkalis destroy this vitamine[22]. The injurious effect of adding lime water to milk mixtures for infants becomes apparent.

Mild or latent cases of adult scurvy may manifest themselves only as langour and depression. For infants Hess[23] has given us a new scurvy syndrome, characterized by a broadening of the x-ray shadow at the base of the heart and by a rapid pulse and respiration (polypnea).

When I was in London a year ago I was much interested in the work of Harden and Zilva, Chick and Hume at the Lister Institute, Mellamby at the University of London and Drummond at the Cancer Hospital. Their experimental work was done first on rats and guinea pigs, then dogs and monkeys and finally the results of their research were applied to children in the Great Ormond Street Hospital under Dr. Still.

On my return home I was anxious to try the effect of vegetable juice in scurvy. Some months ago the opportunity came. This was in a baby eight months old weighing only 10 pounds. For four months she had been on a diet containing an alkalinized malt sugar. When I first saw her, her feet were painful to touch and she screamed when anyone came near her. She had polypnea and a pulse rate of 174. I prescribed four teaspoonfuls of fresh raw cabbage juice per day and in two days there was a remarkable improvement and in a short time complete cure.

As a general rule it may be stated that all vitamines are injured more or less by cooking and especially if soda, lime water or other alkalies are added[9, 20]. Many experiments have been done to find out the proper temperature and the proper time to cook foods so as to make them most readily digestible and still preserve as much of the vitamine as possible. Much more work is needed along this line and I anticipate that the cook books and dietary formulae of the future will be rather different from the present ones.

On the basis of our present knowledge the general principles governing an ideal diet from birth thru puberty would be somewhat as follows: First and most important give breast milk for nine months. In this let me emphasize the futility of chemical examinations of breast milk. Breast milk is the ideal food, whether it contains 1 per cent fat or 10 per cent and the only contraindications to breast feeding are death of the mother, active tuberculosis or insanity in the mother. When breast milk becomes right in quantity it will become right in quality, if the mother's diet is properly balanced. I have yet to see a case in which breast milk was so poor in quality that it furnished a valid reason for weaning. Barnes and Hume have shown that summer cow's milk has a higher antiscorbutic value than that given in the winter, because the summer diet contains more fresh herbage[24]. We are now doing some research work at the University of Oregon Medical School, as to the effect on nursing rats when the mother is on a diet inadequate in its vitamine content. These results will be reported later.

At six months cereals should be added to the breast fed baby's diet. At nine months he should be getting purees of the green vegetables. Ten years ago vegetables were not given until two or three years of age and eggs were given at nine months. Now the process is reversed and eggs, especially the white of egg, are usually not given until two to three years. At fifteen months meats are given, beginning with sweetbreads and calves liver or fish liver. In a short time I anticipate that salmon liver, which I am told is now a useless by-product of the fishing industry, will become appreciated and sold in the open market. Perhaps, too, a salmon liver oil could be made equal in vitamine value to the famous cod liver oil. After two years of age the child eats so many things that the problem is one of giving a diet properly balanced from the standpoint of fats, proteins, carbohydrates, salts, water and vitamines. I have prepared a table which divides foods into six groups and which a mother may use intelligently, even tho she has never heard of vitamines.

FOOD GROUPS.

1. Vegetables: Spinach, carrots, cauliflower, beets, string beans, potatoes.
2. Protein: Milk, eggs, meat, fish, cheese, liver, kidney.
3. Cereals: Whole wheat, oatmeal, rice, bread, corn meal.
4. Fats: Butter, yellow suet.
5. Sweets: Glucose, syrups, karo, honey, jelly, jam.
6. Fruits: Oranges, tomatoes, prunes, apricots, rhubard, apples.

Give something from each group every day.

It is as easy to overbalance a diet on the side of protein as it is on the side of sweets. When a mother says that her child does not like vegetables, we know at once that it is probably on an unbalanced diet. If the child takes one to two quarts of milk a day and perhaps one or two eggs, it is getting too much protein. Its appetite is appeased and it does not want green vegetables. The blood and brain are, therefore, not getting the mineral or the vitamines which they need. It is better to give a pint of milk per day and, if such be given, white of egg is unnecessary. Then in a short time a child will acquire a normal appetite for vegetables.

To properly regulate and individualize the diet of a child is probably the greatest preventive medical work possible. McCollum[6] suggests that perhaps germs are not the primary cause of disease, that tuberculosis may be due to the absence of some vitamine which makes it possible for the germs to get a foothold. The past decade has opened a wonderful field for research. Let us hope that the next decade will greatly extend that knowledge.

SUMMARY

1. The discovery of vitamines and the effect of their absence in war diets has shown that chemical analysis alone cannot reveal the total value of a food. Its biologic value must also be known.

2. The scientific diet of today must contain not only the known chemical elements, fat, protein, carbohydrates, salts and water but also the unknown elements fat-soluble A, water-soluble B and water-soluble C.

3. Fat-soluble A is found in cod liver oil, butter, glandular organs and in green leaves, and its absence from the diet causes xerophthalmia and perhaps rickets.

4. Water-soluble B is widely distributed in plant food, especially in the germ of cereal grains. Its absence causes polyneuritis.

5. Water-soluble C prevents scurvy and is present in fresh vegetables and some fruits.

6. Prolonged heating or even aging, especially in the presence or an alkali, destroys the vitamines.

7. Insufficiency of vitamines in the diet may cause some of the indefinite symptoms complained of in both children and adults and may also influence infectious processes.

8. A case of subacute scurvy is presented, illustrating the value of fresh cabbage juice as an antiscorbutic.

9. Our knowledge of vitamines makes it incumbent upon us to see that every baby is breast fed and that after infancy it have a properly balanced ration. A table of foods is suggested as a guide in the home.

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CONGENITAL SYPHILIS.*

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This paper is not presented with the idea of adding anything new to the subject of congenital syphilis, but to review some of the recent literature thereon, and to report three cases of congenital syphilis occurring in one family.

INCIDENCE.

DeBuys and Loeber (*Jour. A. M. A.*, 1919) report findings in a series of 106 cases, in a foundling institution in New Orleans, to the effect that the leutin test is more reliable than the blood Wassermann. Of these cases 74.6 per cent were under two years of age and 41.6 per cent were under one year. The oldest child was seven years. They believe the relative value of these tests may have been affected by the intensive treatment to which each child is subjected. Three grains of mercury with chalk are given daily to all new-born for a period of four days, followed by castor oil. If the skin shows any eruption, this is followed by 33 per cent mercury under the band. If response is shown, they are given syrup of the iodide of iron in the feedings for the first year.

They found congenital syphilis to have occurred more frequently in illegitimate children and, in the 106 cases, the disease was present in 83.96 per cent. Of these 74.53 per cent were shown by the leutin reaction and 9.43 per cent by the clinical findings, revealing syphilitic skin eruptions. Taking this as a basis, while possibly higher than the average, there must be many cases going untreated.

PREGNANCY AND SYPHILIS.

Hendry (*Lancet*, 1920) finds that a negative or slightly positive Wassermann may be found during pregnancy, and that a positive reaction may be found in a non-syphilitic individual. He concludes that the institution of mercurial treatment before pregnancy justifies a favorable prognosis to the child, and that prognosis, when the treatment is begun during pregnancy, depends on the unknown and already present degree of infection of the fetus.

Roth (*Lancet*, 1920) believes little may be accomplished for the child with treatment, if the growing organs have already become infected. He concludes, however, it is his belief that syphilis could be entirely eliminated, if every expectant mother came under scientific medical supervision and if facilities for diagnosis, and for both efficient and sufficiently prolonged treatment for mother and child were available.

Adams (*Lancet*, 1920) believes that a syphilitic mother, treated for three or four months before her confinement, will probably be delivered of a healthy child at term. He further states that, if the mother's Wassermann is negative at term, the child will not be infected; otherwise, it will be syphilitic.

PROGNOSIS.

It would appeal to me that the prognosis in congenital syphilis would depend on the treatment before birth. If this has not been begun early and there have become pathologic changes in the internal organs or nervous system, it certainly is not good, and after treatment would not promise very much. I believe, as Roth states, that adequate treatment, preferably begun before conception and carried out intensively during pregnancy, will go a long way in the elimination of the disease in the new-born. I do not believe, however, that, with pathologic changes having occurred in utero, we are justified in giving a favorable prognosis as to a cure, without some of the secondary manifestations occurring later in life.

DIAGNOSIS.

There are some important things overlooked in the diagnosis of congenital syphilis. First to my mind is the family history. If there is a history of abortions in the later months of pregnancy, or poorly nourished children have been born slightly premature that did not live, one should be very suspicious. The early manifestations of the skin are characteristic, and can hardly be confused with other conditions. To support these we have the leutin test, and the spinal fluid or blood Wassermann at our command, and we should encourage their use in every case, if the diagnosis is not clear without them.

PATHOLOGY.

I shall not speak of the pathology with which we are generally familiar, but wish to mention some new thoughts that were abstracted in *Medical Science*, of January this year. Schulmann points out that the glands of internal secretion, by reason of their vascularity, are especially vulnerable to syphilitic infection, and that their glandular cells form a suitable nidus for the multiplication of spirochaetes. The connection between syphilis and disease of the endocrine glands appears to have been first suggested by the frequent coexistence of exophthalmic goiter with tabes. The demonstration of S. pallida in these glands, by Jacquet and Sezary, and the frequent occurrence of a positive Wassermann in endocrine disease, gave further evidence to the syphilitic factor in these cases.

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*Read before Annual Meeting of North Pacific Pediatric Society, Portland, Ore., June 29, 1921.

In inherited syphilis lesions of these organs are nearly as common as those of the liver and spleen and, according to Sezary, when the subjects survive, these organs are left in a state of functional miopragia and susceptible to complications on the occasion of any infection. Diminished function of the pituitary has been alleged as a cause of Frolich's adiposo-genital syndrome and of osteitis deformans. In hereditary syphilis, according to Fanoy, the defensive reaction causes increase in the islands of Langerhans, and transforms the pancreas into an endocrine gland, which explains the comparative rarity of diabetes in the subjects of hereditary syphilis, in spite of the frequency of syphilitic lesions of the pancreas.

Graves remarks that many of us are acquiring the habit of disregarding the syphilitic as an individual prior to, during and after treatment; and of treating the positive Wassermann reaction rather than the individual. The syphilitic individual is taught to believe himself cured when the Wassermann reaction is negative, and is thus imbued with a false sense of security from further manifestations. He then poses the following questions.

1. Have we any justification in the present day teachings and practices in the treatment of syphilis?

2. Are our brilliant so called cures now or have they ever been, with but few exceptions, other than symptomatic cures?

3. Have we any biologic or clinical evidence, justifying the conclusion that the favorable influence of remedies in human syphilis is dependent upon any other factor than their influence on the defensive mechanism inherent in the syphilitic?

Graves believes the offsprings of syphilitics should be examined by comparative clinical and anthropometric methods. When such methods are applied to syphilitic families, it is rare to find a child which comes up to the normal standard of healthy human breeding. Such studies will show the relative infrequency of the usual signs of congenital syphilis, but will show in many cases deviating characteristics in total development and an adaptibility to environment, even in the progeny of parents whom we believe to have been adequately treated.

TREATMENT.

It seems to be entirely agreed that the treatment is limited to mercury, the iodides and some of the arsenical preparations. The only point in question is the amounts and methods of administration. A number of reports have been published on rectal administration of the arsenicals. It is to my mind not adaptable in children.

Fordyce and Rosen (*Jour. A. M. A.,* 1920), reporting from the dermatologic department of Columbia, have been using neoarsphenamin and mercury intramuscularly with a special needle of 19 or 20 gauge, one-half to one inch in length, with which they inject into the gluteal muscle. They give at weekly intervals doses of 0.075 for infants from three to eight weeks of age, and 0.15 to 0.2 gm. from one to two years. In reporting on 45 babies they have had no bad results from this method, and believe there is little danger of abscess following, if the drug is gotten into the muscle. They report good symptomatic and serologic results. They give six to eight doses, at weekly intervals, followed by a rest period of four to six weeks.

Jeans (*Jour. A. M. A. Jan.* 1921) reporting from Washington University Dispensary, says the child attends the clinic once a week and is given one-half minim of a 1 per cent sol. of mercuric chloride for each kilo of body weight, injected into the muscle. Mercury with chalk is prescribed three times a day by mouth. Every two months there is started a series of three intravenous injections of arsphenamin, given at weekly intervals. The dose is 0.01 gm. per kilo body weight. Infants are required to continue this for one year and older ones for at least two years, all for six months after the Wassermann is negative. This plan has been used in 250 cases. There have been some of their cases, where full doses of arsphenamin have been given at twenty-four to forty-eight hour intervals without ill results.

Sicard (*Medical Science* abstracts, Jan. 1921) treats his cases of cerebrospinal syphilis by small daily doses of arsenical compounds, given either intravenously or subcutaneously. Remarkable results are said to have been obtained by this method in chronic cases of hemiplegia, paraplegia, tabes and even general paralysis. In addition to its action on the syphilitic process in general, he states that arsenic administered in this manner is capable of provoking reactions of the peripheral nervous system, by which spasmodic organic affections may be benefited.

Ramsay reports, in conclusion, that it is their experience that a 50 per cent mercurial ointment, in amounts of one drachm by inunction twice a week, will keep a constant elimination of mercury from the urine, and that this is the guide to follow.

In treating our cases we have invariably used either mercury and chalk by mouth or mercury by inunction. Formerly daily inunctions were used. More recently, however, we have followed the plan devised by Ramsay. This has been the basis of our treatment, and has been continued in conjunction with any other treatment that might be used. We have used neoarsphenamin injected into the muscle in younger children, and intravenously in those where we could easily enter the vein. We have not been able to determine better results intravenously than those by the intramuscular method. We have given in series of two to four doses at weekly periods, with an interval of four to six weeks before repeating. We have obtained good clinical results. The serologic findings will be referred to later.

CASE REPORTS.

This report will only include three cases of cerebrospinal syphilis observed in one family.

On Sept. 15, 1919 we were asked to see a child who had been paralyzed for three days. We found M. C., 28 months of age. The father was living and well and his family history was negative. The mother was six months pregnant, but was enjoying good health. There had been an earlier pregnancy. The child, coming one month premature, was poorly nourished, had some hemorrhages and died in a week.

The patient, the second pregnancy, was born at term, weighed 6 lb. 10 oz. and was breast fed to the 17th month, she did well to the second month, when some food disturbance occurred, this of mild degree. Had slight skin eruption and was given mercury for a little while with good results. At the seventh month she had bilateral suppuration of the cervical glands. Has had pertussis. Aside from these she has been healthy, eats, sleeps and acts as a normal child. Walked and talked normally; teething was at usual time.

The present illness began five days before with stupidity, apparently some fever and she was very restless at night. Mother gave her oil with a very good result.

Little change was noticed for two days, when she developed a paralysis of the right arm, leg and loss of speech.

On examination I find a well nourished girl, rather listless, showing a disposition as if she would prefer to be left alone. The general physical examination is negative except for the points mentioned. The temperature is 99°. The head is striking and will at once attract attention. It measures 51.5 cm. while the chest is 44 cm. The frontal eminences are strikingly prominent, with depression of the sutures. There is depression of top of head and saddle nose. The eye reflexes are sluggish, the right k. o. exaggerated, left normal. The leg and arm show slight tendency to move on pricking with pin. This may be only reflex, since there is no ability of voluntary movement.

Nothing else was noted at this time except that the teeth were in a poor state of preservation, this probably due to lack of care. There was considerable confusion in the neighborhood, as a report had gotten out that it was probably poliomyelitis. In order to clear this up we did an intrathecal puncture and secured about 15 c.c. clear fluid under slight pressure. The serologist reported 80 small lymphocytes, positive globulin and four plus Wassermann on the fluid. The colloidal gold was negative.

We instituted mercury treatment at once and have given her neosalvarsan at weekly intervals, with the rest period. Following the first salvarsan injection she showed very marked improvement in the use of her arm and leg, together with recovery of the voice. She made gradual improvement for a period of six months, after which there has been little change. She will talk normally, but has possibly only 90 per cent use of arm and leg. Treatment was pushed intensively until January 15, 1921, at which time a blood Wassermann showed four plus. After a rest period of thirty days treatment was resumed. We have given mercury by inunction at twice a week periods. We gave neosalvarsen at .3 gm. doses intramuscularly.

It is our belief that this case has permanent damage, and will never be normal. There is evidently an endarteritis, affecting the lenticular striate or artery of Charcot, which supplies the internal capsule, this being the artery most commonly affected in cerebral hemmorrhage. We shall continue treatment in this case, and shall be governed by circumstances.

Since the mother was six months pregnant when the above case came in our service, we felt something should be done for the unborn. She was accordingly given salvarsan intravenously for three doses, and in conjunction was given potassium iodide in increasing doses. Her physician states he pushed potassium iodide to forty grain doses, but had to reduce as it disturbed digestion. It was continued in smaller doses till term.

She delivered at term twin boys, weighing 5 lb. 5 oz. 7 lb. 1 oz. respectively. They were fairly well nourished and did unusually well, since the mother has an unusual milk supply. At one year they weighed 20 and 21 lbs. respectively. They were both put on mercury by inunction, at twice a week periods and never gave any trouble or showed signs of any disturbance whatever. This was begun at the first month after birth. On the 15th of January this year we did a blood Wassermann on them and found both to be negative. We then permitted the arrest of treatment for a time.

Owing to illness I lost track of them for two months, but about the middle of February one had a convulsion. In four days the other had a convulsion. Each then had four convulsions at eight day intervals. These were of short duration and of the epileptic type, as the mother described them. I did not see any of them. They were back to normal before one could get there. There was no temperature or indigestion, or anything to be found about them to cause these disturbances. We were sure they were of syphilitic origin and advised resuming mercury, and to control them gave sodium luminol in 1-8 gr. doses at 9 P. M. They each had one convulsion after resumption of treatment, after which no disturbance has occurred. Luminol was discontinued after three weeks, but they are still on mercury.

These were as nearly the same as two cases could possibly be, so we have described them together. They prove to my mind that the blood Wassermann when positive indicates that we are not free from syphilitic infection, but when negative is not always reliable in cerebrospinal syphilis, as has been shown by our reports.

A striking feature of these cases is that the father denies any syphilitic infection, and he did not have a Wassermann made. The mother's Wassermann was four plus before beginning treatment during pregnancy. The mother and all her immediate family have the same anatomically developed head as is described in the girl. In addition to this, none of the maternal ancestors, with but one exception, have lived past the thirty-ninth year of life, yet we can get no definite history pointing to syphilis in any of them. The maternal grandfather of the patients is 68 years of age and fairly active. It has occurred to us that we may be dealing with cases that are hereditary for one or two generations, coming from the maternal side of the family tree.

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CLINICAL RECORDS, THE LABORATORY AND THE GENERAL PRACTITIONER.*

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Probably one of the most conspicuous features of modern medicine is the high degree of specialism. There does not seem to be a section of the subject so small but that it has its specialist. One of the results of this intensive method of study has been the collection of a wealth of data that may tend to obscure, rather than to clear, the picture for the general practitioner.

The question that now presents itself is, how to consolidate and render these data generally available. Some hold that the general practitioner should act more or less as an outpost to the various specialists. He is not infrequently told that he should not attempt to treat such and such a type of case but no effort is made to put him in such a position that he can undertake the treatment. Another solution that is offered, and one that is the most popular on the continent, is some form of the group system. This, too, has its drawbacks, more especially from the standpoint of the general practitioner. As a rule a group must be formed about the personality of one individual. Such individuals do not occur in every community that is large enough to need them and, when they do occur, they affect but a small portion of it. Then, when the central figure passes on there is a tendency for the group to break up.

There is, however, another movement which tends to improve the condition of the general practitioner at large and to make the above mentioned data available to him. I refer to the recent stimulus that the making and the keeping of clinical records has received in this country and in my own. To many it will not appear, at first, just how a good system of records helps the general practitioner and aids him in graduate study. I will endeavor, therefore, to show how, while trying to solve one problem in our laboratory, we accidentaly commenced the solution of another. My own experience has been chiefly along the lines of one of the specialties and my illustrations will be drawn from that source, but that should in no way limit their application, for the science of medicine is one and it is only in the details that we should differ.

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The first necessity for a good system of records is that you have something worth recording. It matters not whether it is the presence of albumin in the urine, or the presence of rales in the chest, or the length of a long bone. The value of the record depends primarily upon the accuracy of the original observation. The following example, which is typical of a large group, illustrates one of the problems that the keeper of records must solve. A visiting physician complained that we had reported a case of his to have fewer red cells than ten days previously, while clinically he thought that the case was improving. The determination was repeated and was found to agree more closely with the clinical findings. Further investigation showed that the experimental error of the intern, who had made the determination, was such that the difference between the two estimations was within his extremes of error. He was under the impression that he could make a red cell count. So he could, but his experimental error made the result of no value. That is, he understood the principles but he lacked practice.

In our experience, it is a fond delusion that all graduates of Class A medical schools can make a red cell count with a satisfactory degree of accuracy. If such a recent graduate is asked whether he can make this simple determination, he usually says, "yes." If asked what his error is, he often says that he has none or he wonders what you mean. On being set to demonstrate his per cent error, he is often shocked to find that it is in the region of twenty per cent. When this is put into terms of the red cell count, he sees that a report which reads five million may really be four million, or five million or six million. This is no exaggeration and is a much more common degree of error than would be suspected by any but those who make it a practice of determining the degree of error and expressing it in percentages.

After repeated experiences of this nature, we came to the conclusion that our records were going to be of no value unless we set a standard of accuracy. Interns were at that time difficult to obtain and those that were available were not willing to spend enough time on the laboratory service to acquire the desired degree of skill in the various methods. Accordingly, non-medical assistants were trained and only instruments standardized by the United States Bureau of Standards were used. From that time each report has been accompanied by an understood error of less than four per cent. This small degree of error is easily maintained by those who are in practice and is good enough for all clinical purposes.

Another feature of a good record is brought out by the above. A record is much more valuable, if its probable error can be determined. In the above case per cent error gives this information. In other cases the per cent error can not always be estimated but, as the methods are improved, greater accuracy is attained. In that case it is of value and often of importance to know the method employed. Take, for example, a record that says the guaicum test for occult blood is negative. This is not as valuable negative evidence as a similar test with benzidene. If the report does not say what test was used, the record is of less value than either of the above, since one of the more gross tests may have been employed, such as the test for hematin crystals. Taking an example from surgical records, one often sees the report that the wound was closed by "the usual method." Some day when the usual method has been long in the discard, it may be difficult to find an account of the usual method used by that particular surgeon or group of surgeons. It is not, however, necessary nor even desirable that every record give the method in detail; some sort of reference only is required. In our laboratory we have attempted to solve this question by keeping a general record of the various tests, the date that they are put into use and the date that they are modified.

It is not sufficient, tho, that the necessary skill and knowledge be available, as the following incident well shows. A certain case came up in the law courts, in which it was of the greatest importance to establish whether a man had albumin or casts in his urine during his stay in the hospital some months previously. The records showed several reports of a negative nature. The intern who had made the reports was still in the hospital and so was sent for. On being asked whether he could swear to their accuracy, he had to admit he could not. He explained that, sometimes when he was tired, he would guess what the report should be and make it out accordingly, without actually performing the test. Such a set of records is of no value, for, just so long as the observer can recollect the test itself, there is little need for the record and when he has forgotten it he can no longer remember which tests were actually done.

The same intern later put forth an excuse that was probably more nearly right and certainly has a very wide application. He said that he was interested in surgery and that he was bored to death by so many routine urine analyses. Experience shows that, if a certain type of record is repeated with excessive frequency, its accuracy is apt to suffer and it is not reasonable, nor do I think it right, to expect a highly trained man to be satisfied to make it day after day. At the same time such should really be the most valuable records of all. When a scientific observation is first made it has a certain value. When it has been made with sufficient frequency to have interpretive value, it is of more value. When the observations are to be numbered by the hundreds of thousands, it becomes monotonous to make the observations but the volume of data on the question makes it of just that much more value in making a diagnosis. The frequency of the repetition has removed much of the glamour, but it has also removed the exaggeration which leads to error. In such cases we have found that trained non-medical assistants appear to be the only hope of rescuing these valuable data from a hopeless state of inexactitude.

Another intern illustrated still another phase of the record system. His work was most accurate and painstaking, but his records were both poor and scanty. Investigation here revealed that so much interest and energy were spent on making the observation, that there seemed to be none left to make the record. The loss to the records of this nature is of a more serious character.

A somewhat similar loss is the one in which the specialist keeps his own case report most carefully but there is nothing in the public records of the hospital. The hospital and the public have paid most of the bill that has made the observation possible but they have got only a partial result. However, the hospital can often obtain a complete report, if only it will supply a mechanism which will give speed and accuracy in recording without entailing too much labor on the part of the practitioner. The busy specialist is usually both willing and anxious to give his report to a stenographer, if he is given a copy for himself. Just here it is worthy of note that the state spends large sums of money to educate the medical profession, yet little attempt is made to benefit by recording the wealth of observations that these men make. Surely the years spent in training and experience must develop ideas that are worth recording and certainly worth the comparatively slight expense of recording clerks.

As I said before, it was while striving to solve the above problems that we found ourselves on the road toward the solution of another. We set out to obtain reliable laboratory data in an open hospital and found that we were at the same time drawing the attention of the general practitioners to the recent advances in laboratory aids to diagnosis. It was in connection with one of the older laboratory procedures that we first noted this feature of our work. It was observed that each year there was a material increase in the number of blood counts made in the laboratory. This was in spite of the fact that the population had decreased, owing to the war. Investigation showed that this was not entirely due to the increasing practices of certain men, for some of the older practitioners, who a few years ago could not interpret such data, were now making regular use of them in certain types of cases. From the nature of the results obtained in this simple procedure, it is to be expected and our experience has demonstrated that the same will occur in even greater degree in other modern methods, which have been almost entirely developed since the graduation of the men now in practice.

Take, for example, the modern treatment of diabetes. The general practitioner reads of it in his journals. He finds there is nothing in it that is difficult to understand. When he attempts to put it into practice, tho, he finds that it requires very considerable cooperation on the part of the patient and the hospital. That is, it requires considerable machinery to get consistent results. In our hospital we have tried to develop this machinery, so that any physician can bring his case into the hospital and direct mechanism as applicable to his particular needs. The result is that any man who cares to really treat his diabetic patients can do so. In the same way we have developed a mechanism by which the physician can obtain the result of a kidney function test by simply writing out a requisition. In a word, we have taken away some of the purely mechanical worries of the general practitioner, and asked him instead to use his training to interpret the data supplied. The results already obtained have, I think, warranted the no inconsiderable work entailed in developing these mechanisms.

There is one more way in which the collection of clinical records in a local institution affects the rate at which new methods are put into practice. Our experience shows that the record of a local case appeals far more to the general practitioner than one quoted from the literature. I think of one set of kidney function determinations that were made on a case in the hospital which came to autopsy. I have found that this one local set appeals far more to the average man than many that are to be found in the literature which may be more completely worked out. The record of the local case seems to be more real and living than those in the literature.

In conclusion, we have found by experience in our laboratory that the production of accurate local records leads to a more general adoption of the recent advances by the general practitioners. To produce these records the three interns illustrate the three great requisites for a good record system. There must be knowledge and training to observe. There must be skill to control the factors affecting the determination and three must be a free use of clerks to relieve the highly trained of the dulling affects of too much routine. In our laboratory we have tried to solve these problems by the free use of trained non-medical assistants and record clerks. The time in the laboratory to make the various determinations and the rapid accummulation of records soon sets a limit to the amount of work that any man can do and, so long as both these duties are performed only by trained medical men, there will be a dearth of data and nothing to attract the workers; while, on the other hand, the trained assistant develops a skill that eventually is superior to that of the graduate and after all the fact is what the opinion should be based on. It aids but little in the interpretation of any test to have the necessary skill and experience to perform it.

ROCKY MOUNTAIN SPOTTED FEVER IN SEATTLE.*

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This case is reported not because of its rarity per se, but because tick fever is a great rarity in Seattle. Some fourteen years ago two cases were reported to the King County Medical Society by Dr. J. C. Moore and these are the only cases that are known to me as occurring hereabouts.

A previously healthy man of 46 returned to Setattle on May 5, 1921, after a five day's sojourn in southern Idaho in a sheep district, and was suddenly stricken with fever, chilliness and weakness on the very day of his return. On the third day of his sickness a discrete papular eruption appeared on his neck and face. This extended to his chest, back and abdomen and was accompanied by severe pains in his legs which continued for three days more. About the same time dark red maculae broke out, first on the legs and later on the arms and became petechial. The hemorrhagic spots became more or less confluent and some were nearly as large as the little finger nail. There were no catarrhal, respiratory or digestive symptoms. He was held in the City Hospital twenty-four hours as a small-pox suspect but was then released without a diagnosis and went home, where I saw him at Rainier Beach, May 19, and the fourteenth day of his sickness, with Dr. G. I. Birchfield.

Dr. Birchfield had come to my office on that day, saying he had a peculiar and undetermined case of skin eruption and, in the course of his talk, mentioned that the patient was recently returned from Idaho. I at once suggested that the case might be one of tick fever and he said that the same idea had occurred to him.

I found the patient in bed and his face and body covered with the papular eruption noted, while the macular and petechial eruption was confined more particularly to the legs but beginning to make its appearance on the arms. The patient had been running a temperature of 102° to 103° F, with early morning remissions, for two weeks. He complained only of fever and prostration. The tongue was coated but no signs of eruption or other lesions were seen in the mouth or throat.

There was a D'Espine sign with broncophony as low down as the fourth dorsal vertebra, suggesting enlargement of the bronchial glands. The heart and chest were otherwise negative. The spleen was easily palpable but not so the liver. There was no general glandular enlargement. The abdomen was slightly tympanitic. The leucocyte count was 8,000 with 76 per cent of poly's and 24 per cent of mono's. The Wassermann test was negative (Dr. Magnusson). The urine was normal and a blood culture was sterile.

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*Read before King Co. Medical Society, Seattle, Wash., June 20, 1921.

On questioning the patient it seems that the residents of the district in Idaho near Mountain Home, where he had stayed, told him he was lucky to escape without tick fever which was very prevalent there at the time of his visit. Moreover, a wood tick was discovered on his body after his return to Seattle. The course of the fever, the characteristic hemorrhagic eruption (which usually occurs on the third to fifth day of the disease), the probability of exposure in an infected region, the season (because late spring and early summer is the season of incidence), the finding of a tick on his body, and the splenic tumor, all enabled me to make a positive diagnosis of tick fever at my first visit. On the following day we inoculated a guinea pig with an intraabdominal injection of 1.5 c.c. of the patient's blood but no harm resulted because of the lateness of the period of morbidity, with decrease of organisms in the blood and increase of antibodies, as the fever began to decline on the day of inoculation. Indeed, blood for cultures should always be taken early, perferably during a period of chill. This applies to all septicemias and explains the common cause of sterile cultures.

In tick fever it has been found that experimental transmission is impossible after the fever disappears. The disease has an incubation period of from 3 to 12 days, usually from 4 to 8 days, and a duration of from 2 to 3 weeks. The fever usually begins to decline after the end of the second week. A very short incubation is a bad omen. The mortality varies enormously. Thus in Montana from 60 to 90 per cent, while in other states it is about 2 to 3 per cent. In Montana the favorable cases occur usually in children or others under twenty-five. If a patient survive after the fourteenth day, recovery is assured. One attack confers lasting immunity; there are no instances of a second seizure.

There is no specific treatment. The use of immunized horse serum has not proved successful. Prevention may be secured by cleanliness. It seems the tick is not a hasty eater and crawls about on the body for one-half to ten hours before settling down to feed. Consequently, if a person were to hunt for ticks on the body on rising, after lunch, and at bedtime, the chances of being bitten and infected are slight. Furthermore, if one does not indulge in the luxurious habit of sleeping in day clothes at night, the chances of infection are few, for most victims are those who scorn such effeminate refinements as night clothes. It is as with typhus, where general lack of cleanliness is next to lousiness, to paraphrase Wesley. There are special tickicide ointments which may be used by those in a tick country.

The distribution of tick fever is most interesting. It naturally follows the distribution of this species of tick (dermacentor venustus), in the valleys of the Rocky Mountain country, and farther west between forty and fort-seven degrees N. latitude at an elevation of 2,500 and 4,000 ft., comprising certain definite areas in Washington, in Grant and Lincoln counties, Idaho, where most cases occur, Montana, Wyoming, Utah, Colorado, Nevada, Oregon, and Northern California. Isolated cases may occur, as herein reported, thru the itinerancy of tick infected persons or animals. It is a curious fact that 90 per cent of infected ticks die on sheep, it is said from the action of lanolin on their bodies. The narrow limits of tick infected and infested areas may be realized, when it is known that tick fever is rampant on the west but is rarely seen on the east side of the Bitter Root River in Montana. The sheep gather up the ticks on the east side.

We will not go into the life cycle of the tick, lasting over two years from eggs to eggs, more than to note that they feed on small rodents, as squirrels and gophers, during the early stages and on large animals, as cattle, sheep and horses, in the final stage of development. Moreover, the adult female transmits the infection to her eggs but there is no known animal in which the disease exists in acute or chronic form. It is thought, however, that tick fever does exist in chronic form in some animal to supply a constant source of infection to ticks.

The guinea pig and rhesus are readily inoculated with tick fever and the latter shows a specific reaction in the production of swelling of the testicles and scrotum within 2 to 17 days, usually in 8 to 10 days.

Since 1399 there has been a long line of reporters and investigators of tick fever. For years the disease was associated with tick bites, and called tick fever, before King and Ricketts established in 1906, this mode of transmission thru scientific proof. Thereafter Ricketts studied the disease for years and discovered the etiologic organism but confused it with other bacteria found in non-infected ticks.

The etiologic organism of tick fever is a minute, anaerobic bacillus, occurring in somewhat different forms in the tick, in the blood, and peripheral blood vessels of patients, in which they lead to blocking of the vessels and petechial eruptions. At present the isolation of the organism is very difficult in blood, cultures, or tissues, and guinea pig inoculation is the most practical test.

Welback, the investigator most recently describing the bacteriology of the specific organism, suggests for it the name of dermacentroxenus rickettsi. The organism is closely allied to that of typhus fever and tick fever is now regarded as a form of typhus. The two cannot be differentiated clinically.

There are many manifestations seen in the severer forms of tick fever which were absent in the case reported. Bronchitis, injected eyes, jaundice, albuminuria and hemorrhages from the mucous membranes are often seen. Albuminuria is rather the rule, with nephritis. The leucocytosis is not usually over 12,000. High leukocytosis in the later stages is a bad omen, as also a pulse over 100 in the later period. Delirium and coma occur in severe cases and in all mental impairment is apt to be prolonged in convalescence. In the third week necrosis of the skin of the prepuce, scrotum and fingers and toes is sometimes observed. The eruption is specifically macular and petechial, and not also papular, as in this case. It also usually first appears on the wrists and ankles. The pain accompanying the eruption is also more usually general, with headache and backache, as well as aching in the limbs.

Ticks, in biting the skin, inject some secretion which lessens the coagulability of the blood. In children and in lambs the tick bite sometimes produces a paralysis of the arms and legs. The removal of a tick inbedded in the skin in such cases will result in the rapid disappearance of the paralysis, otherwise death may occur. Tick paralysis in children and in lambs is observed in Canada, northwestern United States, Australia and South Africa. It has been produced experimentally from tick bites and always disappears when the ticks are removed from the patient.

Recently I read in a Canadian Medical Journal of a motorist who brought a child with paralysis to a doctor in Montana. The doctor could make nothing of the case and was afterward telling his wife about it in the presence of their cook. "Did you tell the man to look for a tick on the child," said the native servant and she explained that ticks caused paralysis. The doctor caught the motorist at a distance by telephone and asked him to look for a tick on the child. He reported a tick was imbedded in the child's neck. One should be at least as well informed as one's cook in such matters.

Irradiation in Cancer of Female Genito-Urinary Organs. The report made by John G. Clark and Floyd E. Keene, Philadelphia (Journal A. M. A. Aug. 20, 1921), deals with a total of 313 cases; 112 of the patients are living and 201 dead. All patients have been subjected uniformly to 100 mg. of radium for twenty-four hours at the first application, and this dosage may therefore be considered as the standard with only an occasional exception in more than 400 cases treated up to date. To attain the best results, the first irradiation should be done under nitrous oxid anesthesia, as a more careful examination may be made, and the radium more advantageously brought in contact with the malignant areas either through radium tubes or by radium needles. Gauze packing instead of metal shields should be used for protective purposes. The process of cure passes through three stages: local destruction, connective tissue formation, and hyalinization.

A Case of Chronic Acetanilidism. J. W. Shuman, Sioux City, Iowa (Journal A. M. A., Aug. 13, 1921), cites the case of a nurse, aged 28, who complained of severe pain of two days' duration in the right mastoid region, requiring morphine for relief. She was deeply cyanotic. Her previous history was unimportant except for numerous operations since entering training six years previously. She denied taking any drug which might cause the color (cyanosis). Surgical consultation ruled out any middle ear disease. The urine contained many red blood cells; in fact, the color was chocolate brown. Following the statement of the ear surgeon that "the right ear was normal", the patient developed what appeared to be renal crisis (left), requiring morphine. It was noted, however, that she did not sweat during these attacks. Her temperature (axillary) ranged from 99.5 to 101.5 F. This, it was discovered, was due to an electric heating pad which was her constant companion.

NORTHWEST MEDICINE
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Devoted to the Interests of the Medical Profession of the Pacific Northwest
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September, 1921

EDITORIAL

RECURRENCE OF POLIOMYELITIS.

It is well known that poliomyelitis is a disease of hot weather and each summer it is to be feared to a greater or less extent. Reports to the boards of health of the states of the Pacific Northwest indicate that an epidemic of this disease has existed during recent weeks in this section and has not yet terminated. For example, from Eastern Washington a large number of cases have been reported with several deaths. A smaller number have appeared in the western section but sufficient to prove a wide-spread epidemic is present. The advent of cold weather and the wet season may be anticipated as the period for its subsidence. The fatalities and resulting paralyses of former epidemics fully justify the anxiety inspired by the recurrence of such epidemics.

The publication by Rosenow* of the results obtained by the administration of his immune horse serum, prepared by repeated injection of the pleomorphic streptococcus from poliomyelitis, seems to justify the belief that this remedy is efficacious, especially if administered in the early stages of the disease. His results obtained from several epidemics in which this remedy was employed show a markedly less mortality and less residual paralysis than was observed in untreated cases or those subjected to other lines of treatment. He emphasizes the necessity of early diagnosis in suspicious cases by spinal puncture. It was especially in the preparalytic group of patients that most striking results were obtained. He secured also marked results in those patients with slight paralysis, while naturally the most unfavorable results followed among those with advanced paralysis. The Rosenow serum is available and can be obtained from state and city health officials. Since its administration is said to be harmless, the careful and observing physician should be prepared to administer it in any case presenting reasonably suspicious symptoms of this disease.

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*Journ. A. M. A., Aug. 20, 1921.

MEDICAL LICENSURE IN WASHINGTON.

Many queries have arisen among Washington physicians during the present year as to the requirements and methods of obtaining medical license under the new Administrative Code, enacted at the last legislative session. The following summary presents the essential features of the Code, as they affect the medical license and medical practice.

To obtain a proper conception of the present method of licensing physicians and of the administration of the State Medical Law, an understanding of the Administrative Code provisions relating to the Department of Licenses is essential. The Administrative Code was designed to secure greater efficiency of management and economy of operation in State affairs. The Department of Licenses furnishes an excellent example of the manner in which these aims are obtained.

The Code conferred upon the Department of Licenses the powers and duties formerly belonging to various departments of the State Government relative to the issuance of motor vehicle licenses, motor vehicle operators' licenses, corporation licenses, fishing licenses and several others. It also placed in the Department the powers and duties formerly exercised by fifteen State boards which were abolished by the Code. Among these boards were the State Board of Medical Examiners, the State Dental Board, the Architects Examining Board, the Accountancy Board, the State Board of Pharmacy, the State Board of Mining Examiners and nine others.

Under the Administrative Code, the Director of Licenses prescribes the form for all applications for license to practice the professions, callings and occupations requiring license, as well as the form of license to be issued in each case and rules and regulations for the conduct of examinations. It is his duty to fix the time and place for the holding of each examination and upon notification to the Governor and request for the appointment of an examining committee, the Governor appoints such a committee, composed of licensed practitioners to conduct the examination. This committee prepares the necessary questions, conducts the examination and files with the Director of Licenses lists, showing the names and addresses of the successful applicants and separately the names and addresses of those who failed, together with all examination questions and the written answers submitted thereto by the applicants. Thereupon the Director of Licenses issues to the successful applicants the licenses to which they are entitled.

In case any complaint is filed with the Director of Licenses, charging the holder of a license with such a violation of the law as would warrant the revocation of his license, the Governor, upon the request of the Director of Licenses, will appoint two qualified practitioners of the same profession as the person charged and these two with the Director of Licenses shall constitute a committee to hear and determine the charges and impose the penalty prescribed by law. The decision of any two members of the committee shall be the decision of the committee. An appeal from any refusal of the Director of Licenses to issue a license or from his action in revoking or suspending any license may be taken to the Superior Court of Thurston County.

The first medical examination under the provisions of the Code was held in Olympia July 12-15. The committee conducting this examination consisted of Drs. C. C. Tiffin of Seattle, F. P. Witter of Spokane and J. B. McNerthney of Tacoma. At this examination the committee passed on the applications of forty applicants for license by reciprocity. Of these, thirty-nine were recommended for license and recommendation was refused to one. Twenty applicants took the examination. Of this number sixteen passed successfully and four failed to secure passing grades. The regulations under which license by reciprocity may be granted remains the same as those fixed by the State Medical Board under the old law and the fee which is required by law to accompany the application whether by reciprocity or for examination is $25.00. Examinations will be held in Olympia beginning on the second Tuesday of January and July of each year.

Washington has reciprocity with the following States: Alabama, Alaska, California, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri,, Montana, Nebraska, Nevada, North Dakota, South Dakota, Ohio, Oklahoma, Pennsylvania, Tennessee, Vermont, Wyoming, Wisconsin.

Forms of applications for license by examination or reciprocity are furnished by the Department of Licenses and applications should be mailed at least fifteen days before the date fixed for the examination, to the State Treasurer, Olympia, Washington, with certified check, draft or money order for $25.00 payable to that officer.

THE IDAHO ANNUAL MEETING.

The following is the preliminary announcement of the annual meeting of the Idaho State Medical Association which will be held in Twin Falls, Oct. 6-7. The session will be of a two days duration. The partial program is as follows:

President's Address, H. W. Wilson, Twin Falls.

The League for the Conservation of Public Health. W. T. Williamson, Portland.

Discussion—H. P. Marshall, Spokane.

Treatment of Brachial Plexus Injuries. A. W. Adson, Mayo Clinic.

Discussion—J. L. Stewart, Boise.

Report of Radium Cases of Head and Neck. Arthur C. Jones, Butte.

Discussion—H. W. Stone, Boise.

Dysthyroidism. J. Earl Else, Portland.

Future of Chemistry and its Relation to Medicine. Chemical Foundation, New York.

Subject to be announced later. H. P. Marshall, Spokane.

This is expected to be one of the largest meetings in the history of the association. A number of matters of great importance are scheduled to be brought before the council.

NEW ADVERTISEMENTS.

Attention is called to the following advertisements appearing for the first time in this or last month's issue, which we recommend to the careful consideration of our readers. The firm of Squibb & Sons (page 5), known to all physicians, presents proven products. Pepsodent, "a modern dentifrice" (page 15), is described in detail. Note the sample tube obtainable by the attached coupon. The new announcement is presented of the combined Portland Surgical and Convalescent Hospital (page 17). Braley, the prescription druggist (page 23), announces a special line of standard preparations.

MEDICAL NOTES

OREGON.

New Professor of Anatomy. Dr. Olof Larsell, newly appointed Professor of Anatomy of the University of Oregon Medical School, assumed his duties on July 28. Dr. Larsell was born in Rattvik, Sweden, and came to the United States in 1891. He graduated from McMinnville College in 1910 with the degree of Bachelor of Science and subsesuently received the degrees of Master of Arts and Doctor of Philosophy in Northwestern University, following which he became instructor in zoology in Northwestern University and later Assistant Professor of Anatomy in the University of Wisconsin. He became Associate Professor of Zoology at Northwestern University in 1920 and accepted the professorship in anatomy in the University of Oregon Medical School in March, 1921.

Professor Larsell is a member of the American Association for the advancement of Science, the American Association of Anatomists, the Wisconsin Academy of Science and other scientific bodies. In addition to exceptional abilities as a teacher of anatomy he is a distinguished research worker, having published the results of research work upon the anatomy and development of the lung and the brain. In the Medical School of the University of Oregon, Professor Larsell becomes associated with Professor William F. Allen, Head of the Department of Anatomy and Assistant Professor Wilmot C. Foster, which assures a personnel and organization of that department which classes it among the foremost in the United States in points of teaching and research.

Radium Lost. Last month Dr. Ralph C. Walker, of Portland, lost a tube of 50 milligrams of radium, valued at $6,000, with which he had treated a patient at St. Vincent's Hospital. It was thought to have been emptied into the sewer. In spite of careful use of the elecroscope, the radium was not discovered.

Meetings of American College of Surgeons. Last month the annual sessions of the American College of Surgeons were held for Washington in Spokane August 25-26 and for Oregon at Portland August 29-30. Speakers were: Drs. F. H. Martin of Chicago, A. B. Kanavel of Northwestern Medical College, Marie S. Polack of New York and M. T. McEchern of the Vancouver General Hospital.

Physician Injured. Dr. B. R. Wallace, of Albany, sustained a serious accident last month when his automobile collided with another car on rounding a curve and turned over into the ditch. Dr. Wallace had a broken nose and many cuts, while his companion had a broken arm and minor injuries.

Dr. G. F. Fanning, of Eugene, has moved to Brownsville, where he will practice in the future.

Dr. L. W. Steeves, who has recently served at St. Vincent's and at Emmanual Hospitals in Portland, has located for practice at Salem.

Medical Wedding. Dr. H. H. Ott, of Gresham, was married to Miss Margaret Tacheron of that city July 13.

WASHINGTON.

New Hospital Opened. Our Lady of Lourdes Hospital, at Pasco, was opened for reception of patients last month. It is one of the best equipped hospitals in the state, five stories in heigth and fire-proof construction.

Another New Hospital. A new hospital was opened last month at Enumclaw. At present accommodations are provided for about fifteen patients which will be increased in the near future.

Sanitarium Given to Boy's Club. The Deckman Sanitarium, at Lake Crescent, known as "Qui Si Sana," has been given to the Port Angeles Rotary Club by its present owner, D. E. Thompson. It will be devoted to the interests of the Boy Scouts and some organizations of girls. Before the war it was a well known summer resort maintained by Dr. Deckman.

Addition to Hospital. The Pierce County Commissioners have decided to build an addition to the county hospital at Tacoma to accommodate fifty patients. This will relieve the present crowded structure which contains 140 beds. It is proposed that the new building be a unit of a future large hospital.

Pacific County Society held a meeting at South Bend, Aug. 25. The following officers were elected for the ensuing year: President, F. W. Anderson South Bend; Vice-President, A. W. Schultz, Raymond; Secretary-Treasurer, G. A. Tripp; South Bend.

Whitman County Medical Society held a meeting Aug. 1, at Colfax. The principal speaker was Dr. J. A. Stuckey, of Lexington Ky., whose subject was "focal infections."

Doctor Severely Injured. Dr. J. F. Cropp, of Walla Walla, was severely injured last month. While stopping on the road at night to make an adjustment on his car, he stepped out from behind it just as another car was passing. The latter struck him to the ground with such force as to fracture the skull.

Retire from Office. Dr. Ira C. Brown, of Seattle, who has been at the head of the medical department of the Seattle public schools since its establishment, and Dr. Maybelle M. Park, assistant director, have resigned from these positions. At the same time the majority of the school nurses retired from their positions.

Appointed Medical Inspector. Dr. G. O. Irland, of Burton, was recently appointed medical inspector, by the Bureau of War Risk, of the district including Washington, Oregon, Idaho and Alaska.

Physician to Training School. Dr. G. W. Overmeyer, of Chehalis, has been appointed physician to the State Training School for boys in that city.

Doctor Resumes Practice. Dr. M. B. Mattice, a pioneer practitioner of Sedro-Wooley, has resumed practice in that city. For a number of years he has lived in Anacortes, where he has been president of a bank.

Returns to Practice. Dr. J. W. Mowell, of Olympia, who has been the medical advisor for the State Industrial Insurance Commission since its installation, has resumed the practice of medicine.

Dr. J. S. Leisure, who has been assistant physician at the Eastern Washington Hospital for Insane at Medical Lake for the past year, has located for practice at Davenport.

Dr. M. D. Wood, of Hillyard, and Dr. J. L. Harris, recently of Camp Lewis, have located for practice at Soap Lake.

Dr. M. C. Cook, of Walla Walla and Dr. M. Reich, recently from Rush Medical College, have settled for practice at Entiat.

Dr. Gordon G. Thompson, of Seattle, has gone to England and the Continent for a year's course of study.

Dr. E. F. Ristine, formerly of Copeville, has located for practice in Seattle.

Dr. L. R. Redner, recently of Seattle, has located for practice at Wenatchee.

Dr. J. H. Manning, formerly of Chicago, has settled for practice at Chehalis.

Medical Wedding. Last month Dr. Stanley W. Holton, interne at the city hospital, Seattle, was married to Miss Irene Butterworth, of Chicago.

IDAHO.

South Side Medical Society held its regular meeting at Burley, Aug 16. Address were given by Drs. Deimer, of Portland; Almond, of Boise; Scott, of Twin Falls and Craner, of Burley.

Dr. F. H. Brandt, who has practiced for many years at Boise, moved from that city last month to Portland, where he has located for practice.

Dr. G. G. Verbryck, who has recently served as interne at a Chicago hospital, has located for practice at Gooding.

Dr. J. H. Einhause, formerly of Louisville, Ky., has located for practice at Moscow.

Dr. J. C. Wiik, of Moscow, has located for practice at Spokane.

Medical Wedding. Dr. H. C. Irwin, of Pocatello, was last month married to Miss Helen Zaring, of Paris.

OBITUARIES

Dr. Philo Starr, of Halsey, Ore., died at Eugene Aug. 10 of disease of the heart. He was seventy-two years of age. He located at Halsey forty-eight years ago. In 1882 he moved to Moro, where he practiced for several years.

Dr. Willis Marion, who practiced until recently at Medford, Ore., died from drowning at Meredith, N. H., Aug. 9. He was a graduate of Harvard Medical School and practiced for several years at Medford.

Dr. G. H. Ferrall, of Spokane, died Aug 16, from cerebral hemorrhage. He was born in Ohio in 1843. He was a civil war veteran and after the war studied medicine. For many years he practiced in Michigan. In 1886 he moved to Coeur d'Alene, Ida., where he practiced till 1904, when he retired from practice. He moved to Spokane, where he has lived since then.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

The Treatment of Acute Infectious Diseases. By Frank Sherman Meara, M. D., Ph. D. Professor of Clinical Medicine, Cornell University Medical School, New York, etc. Second Edition, Revised. Cloth, 806 pp. The Macmillan Co. New York. 1921.

In this work there will be found a very practical summary of what appears to the author as the most useful methods of treatment in the case of each acute infectious disease and, at the end of every article, a concise abstract is also appended, so that one may take in the gist of the matter at a glance. In this second edition much new matter has been included in reference to camp measles, streptococcus pneumonia, influenza, meningitis, coryza, tonsillitis, tracheobronchitis, encephalitis, trench fever, rat bite fever and Rocky Mountain spotted fever.

Under influenza the author leaves one in an uncertain mental state as to the effectiveness of convalescent serum in treatment but he feels that it is probably of value, especially in early stages. A very complete description of serum treatment in pneumonia is given and the advisability of early digitalization is impressed. Eggleston's rule of administering about 5 drams of the tincture within 24 to 36 hours in persons of average weight is recommended. Morphine is also advised but in as small doses as possible for restlessness. It has seemed to the reviewer, in a large Army experience, that the two drugs of chief value in pneumonia are morphine used freely in gr. ¼ doses and the tincture of digitalis in dram or half dram doses, every 12 hours till an effect was secured, or vomiting or slow pulse required the stopping or curtailment of the drug. The writer finds no drug has any specific action in encephalitis and does not even mention hexamethylenamine. In Vincent's angina chromic acid (5 per cent.) is given first choice in local treatment, and salvarsan is advised intravenously in severe cases. A 10 per cent. solution in glycerin is often of most value for local application, altho not mentioned. Very good clinical descriptions in the case of the rarer diseases may be found, as in tick fever, and useful comments or differential diagnosis, as in Vincent's angina, which is so often mistaken for syphilis or diphtheria. In prophylaxis of Rocky Mountain spotted fever the author does not note the necessity of examining the body three times daily for ticks, and of not sleeping in the day clothes at night. The book as a whole is a very useful, practical, up-to-date treatise on the subject, and is particularly valuable in its detailed and careful description of the newer serum treatments.

WINSLOW

Nelson Loose-Leaf Living Medicine. A Perpetual System of Living Medicine Prepared under the Direction of an International Advisory Board. By the World's Leading Medical Authorities. In seven volumes. Illustrated. Price, $87.50. Thomas Nelson & Sons, New York, Edinburgh, London, Paris, Toronto.

This work is one of the most pretentious and complete that has ever been offered to the medical profession. Its contributors comprise the leading authorities of the world in all branches of medicine. The plan of the work is different from any system of medicine which has hitherto been put forth. In these seven volumes all the diseases, to which human flesh is heir, are described in accordance with the latest knowledge and the modern advances in medicine. It is impossible to present in detail the method of treating all the subjects considered in this work. The aim is to offer material in sufficient quantity on each subject considered, so that the reader can thereby obtain the latest up-to-date information on any subject in the realm of medicine. Twice a year the publishers will send to each subscriber additional pages, containing reports of advances and investigation in all departments of medicine during the previous six months. From time to time additional pages will be received, when matters of special importance may arise. An ingenious and durable system of binding is employed with each volume, permitting the ready insertion of new pages in their correct sequence, whenever they are received for that purpose. The binding is substantial and durable. Nelson & Sons are the largest book publishers in the world. Having resources available for the most exacting requirements for publication, they have made this system the most perfect that has yet been presented to the medical profession. It will be worth the while of any physician to carefully investigate these volumes for the purpose of their purchase.

SMITH

Cancer and its Non-Surgical Treatment. By L. Duncan Bukley, A. M., M. D. Senior Physician to the New York Skin and Cancer Hospital, etc. Cloth, 457 pp. $6.00. William Wood & Co N. Y. 1921.

In this third volume within six years Bulkley again endeavors to impress upon the prfession the value of medical and dietetic treatment in cancer. In view of the supreme desirability of some successful preventive or cure for cancer, and also in consideration of the high standing of the author, one must accord careful attention and trial to Bulkley's contentions. While one cannot agree with his statements that surgery offers but 10 per cent of cure in cancer—inclining more to Morris Richardson's dictum that at some stage of its growth every cancer is susceptible of cure by the knife—yet there is some basis for the author's view that the cause of cancer is constitutional rather than local. Our most convincing testimony thus far, however, speaks for local sources of irritation, as have been so often described by W. J. Mayo. Basing his assumptions largely on the fact that natives of Japan, Korea, China, the Philippines, India, Siam, and Egypt, living on a vegetarian diet, are comparatively free from cancer, the writer relies largely on this in his treatment. He allows an egg occasionally but no milk, meat or fish. In drug treatment he uses a tonic, diuretic and laxative mixture, believing potash has a specific curative action. Local treatment he also affirms is of importance and advises a number of prescriptions. Coming to actual clinical results, some 91 cases are reported in detail, of which 35 are regarded as clinically cured. Many of these are open to question but many were also far advanced.

The duration of cures is rarely recorded for more than five years and in most is for much shorter periods. Still the amelioration of symptoms and subsidence of lesions were remarkable. While the reviewer would submit all suitable growths to surgery, the treatment advised herein might be tried profitably in incurable neoplasms and is not incompatible with the adjuvant action of radium. In recent researches of Corson-White it was found that oils increased the growth and metastases of cancer in rats (cholesterol content), and that oats stimulated growth. Diet may have a greater influence in cancer than hitherto considered.

WINSLOW

Orthopedic Surgery of Injuries. By various Authors. Edited by Sir Robert Jones, K. B. E., C. B., F. R. C. S. Director of Orthopedics, St. Thomas Hospital, etc. Vol. I, 540 pp; Vol. II, 692 pp. Oxford University Press. London and New York. 1921.

This work is an unusually valuable addition to surgical literature because of the enormous development of orthopedic surgery as a direct result of the war. One of the most interesting chapters in the is entitled "The Principles and Practice of H. O. Thomas," showing that Thomas was the real father of our modern ideal of the treatment of fractures. Indeed, it may be said that the adoption of the Thomas splint for injuries of the lower extremity during the recent war was one of the greatest steps forward in the treatment of the badly injured.

With so many excellent chapters it is difficult to mention any one that is particularly outstanding. In Vol. I, the chapters on splinting, ununited fractures, mal-united fractures and the treatment of flail and ankylosed joints are especially good. Vol. II is devoted chiefly to injuries of the nervous system. The chapter on the operative treatment of war injuries of the peripheral nerves is particularly excellent. The whole work is admirably arranged and each subject is fully dealt with from a practical point of view. It is a leading publication of the day upon this subject.

JONES

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HAY FEVER MEMORANDA

SERIES III

Late Summer Type. Patients whose hay fever develops in mid-August and continues until frost should be tested with the pollens of such weeds as ragweed, goldenrod and the related sunflower. Also with the pollen of the one important late flowering grass, viz. corn, if exposed to same. Together with any pollen of local importance—such as alfalfa in some sections—or cocklebur in others.

Patients whose hay fever continues beyond the pollinating seasons—even into the winter—should be tested with bacterial proteins to locate a possible secondary sensitization of this type.

For those who react to bacterial proteins, specific bacterial vaccines are indicated as supplementary treatment.

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The Oxford Medicine. Edited By Henry A. Christian, M. D., A. M. Hersey Professor of Theory and Practice of Physic, Harvard University, and Sir James Mackensie, M. D., F. R. C. P., LL. D., F. R. S. Consulting Physician in the London Hospital. In Six Volumes. Vol. IV. 938 pp. cloth. Oxford University Press. London and New York. 1921.

In most cases the subjects are presented in the same masterly manner as in the preceding volumes. This would be expected, considering the care that the eminent editors have shown in the selection of the American and English contributors to this publication. The reviewer has been particularly interested in some of the subjects discussed in this volume and may be permitted to confine himself to these. Rowntree, of Rochester, writes the first up-to-date systematic description of diabetes insipidus that has come to our attention. He doubts the existence of the idiopathic type generally described, which the reviewer questioned in a recent article. The etiology is attributed to pituitary hypofunction and the subcutaneous use of pituitrin is advised for treatment. The use of pituitary preparations per orem has been found worthless.

The article on B. coli infections by Howard, of Iowa, is very interesting. The frequency with which hematogenous infections occur from cholecystitis, with secondary involvement of the urinary tract, is not commonly appreciated. So also the paper contributed by Tileston, of Yale, on septicemias of various bacterial origin, is of great value. In regard to treatment nothing offers much in the way of specific therapy, unless it is convalescent serum from a case of similar infection. This has recently been done with apparent success in scarlatina. Transfusion of moderate amounts of blood are of value where anemia is marked. Antistreptococcus serum is considered of no value. In the case of erysipelas Tileston is even more skeptical as to the value of any drugs whatever, believing cold applications are most useful. The reviewer has seen the most favorable effects apparently from the injection of leucocytic extract which has been found so effective in a large series of cases by Alexander Lambert.

WINSLOW

The Assessment of Physical Fitness. By Correlation of Vital Capacity and Certain Measurements of the Body. By Georges Dreyer, C. B. E., M. A., M. D., Fellow of Lincoln College. Professor of Pathology in the University of Oxford. In collaboration with George Fulford Hanson. With a Foreword by Charles H. Mayo, M. D, Rochester, Minn. Cloth, pp. 128, with XXIV Tables, Price $3.50 net. Paul B. Hoeber. New York. 1921

The author contends that occupation of the individual plays a large part in his physical tendencies. He divides all workers into three classes. Class A includes those who have undergone prolonged physical training, Class B those of the professional and business classes, Class C those leading a sedentary life. One readily recognizes that the degree of development will vary in these classes. It is supposed that the facts presented herein will be of much value to the actuaries of life insurance companies, influencing them as to who should be accepted and refused, in the light of physical development. The book contains numerous tables dealing with vital capacity and body weight, as related to various factors in physical development.

SMITH

A Text-Book of Pathology. By Alfred Stengel, M. D., Sc. D., Professor of Medicine, University of Pennsylvania, and Herbert Fox, M. D., Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Seventh Edition, Reset. Octavo of 1111 pages with 509 text illustrations, many in colors, and 15 colored plates. Philadelphia and London: W. B. Saunders Company. 1921. Cloth, $8.50 net.

A generation ago this work became standard as a text-book on pathology. It has improved as knowledge of the subject increased, so that it stands today as one of the very best books on the subject. This, the seventh edition, has undergone a complete resetting to accomodate itself to the rapid increase of pathologic knowledge of late years. The subjects of nephritis, influenza and lymphomata have been entirely rewritten. The text is concise and clear; the illustrations profuse and admirable.

WEST

General Medicine. The Practical Medicine Series, 1921, Vol. I. Edited by Frank Billings, M. S., M. D. Head of the Medical Department Rush Medical College, Chicago. Price of Series of Eight Volumes, $12.00. The Year Book Publishers, Chicago.

This is the annual publication on general medicine, which is so well known to the medical profession. It is a review of the progress made in treatment of medical conditions. About one-fourth of the volume is devoted to the infectious diseases and an equal space to the diseases of the heart and blood vessels, the remainder considering the diseases of other organs. One finds herein many suggestions along the newer lines of treatment which are invaluable to one who aims to keep abreast of the times and familiarize himself with the lastest developments in medicine.

SMITH

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. Thirty-ninth year. 564 pp. Price, $6.00. Wm Wood & Company, New York, 1921.

This work contains articles on numerous subjects by well-known members of the profession in the United States and Great Britan. An introduction by the editor presents a condensed review of the year's work, in which is briefly mentioned the important advancements and investigations of the year. Part I, dictionary of remedies, is a review of materia medica and therapeutics. Part II, dictionary of treatment, is an alphabetical review of medical and surgical diseases and their treatments. This book contains a wealth of material, such as one can scarcely find elsewhere in a single volume. With its numerous illustrations, many of them in striking colors, it contains a very instructive review of the year's progress in medicine and surgery.

SMITH

NORTHWEST MEDICINE

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ORIGINAL CONTRIBUTIONS

LOCAL ANESTHESIA, ITS ADVANTAGES, INDICATIONS AND TECHNIC.*

ROBERT EMMETT FARR, M. D.
MINNEAPOLIS, MINN.

The Advantages of Local Anesthesia. Obviously the main outstanding advantage of local over general anesthesia lies in its relative safety. If we are to give to our patients the maximum of safety while they are undergoing surgical operations, it would seem that as large a percentage as possible should be performed under the influence of local anesthesia. It is also important that every operation be done with efficiency and, up to the present time at least, general surgeons have not been able to develop sufficient technical skill in the use of local anesthesia to make its use routine. It is the belief of the author that the use of local anesthesia may be extended to a much greater degree than it has been in the past, and that by its use greater safety and comfort may be given to surgical patients, and that in many instances a more efficient operation may be performed, thus lowering not only the mortality but the morbidity as well. In order to bring about this change it will be necessary for surgeons to more clearly understand the principles underlying the use of local anesthesia, and also to realize the necessity for other requirements in relation to its use.

Relative Toxicity. Of the efficient local anesthetics, novocain is undoubtedly the drug of choice at this time. It has perhaps the lowest toxicity of any local anesthetic, when the element of potency is considered. The maximum lethal dose is not known, and for practical purposes needs little consideration. The toxicity of the drug depends upon the strength of the solution and the manner of introduction.

Solutions Used. Success can only follow the introduction of a sufficient amount to produce anesthesia. The total amount measured in grains, for instance, has about the same relation to the use of local anesthesia as has the total amount of chloroform or ether, when these drugs are used for the production of general anesthesia. Novocain dissolved in Ringer's solution, and used in a strength of twenty-five to seventy-five hundredths per cent, if combined with adrenalin or otherwise prevented from rapidly entering the circulatory system, is relatively safe, even when used in comparatively large doses. In other words, it is probbly true that one may safely use a sufficient amount of novocain in any given case to produce satisfactory anesthesia, provided its use is properly safeguarded, assuming that the case is one which is suitable for the use of local anesthesia. The stock solution that we have employed for general use is seventh-tenths of one per cent procaine, dissolved in Ringer's solution, and combined with about three drops of one to one thousand adrenalin solution. Toxic thyroids require the reduction of the adrenalin to one instead of three drops.

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*Read before the Forty-Seventh Annual Meeting of Oregon State Medical Association and Fifth Tristate Meeting, Portland, Ore., June 30-July 2, 1921.

Necessity of Special Surgical Technic. Surgical operations when performed under local anesthesia require a special technic in most instances. What may be termed ideal anesthesia under a proper surgical technic may, and indeed probably will, prove to be entirely unsatisfactory anesthesia under the surgical technic which is accepted as more or less standardized by those who use general anesthesia exclusively.

Technic of Inducing Local Anesthesia. Time will not permit a discussion of the various methods employed in inducing local anesthesia. Broadly speaking, there are three methods which fairly well cover the surgical field—direct infiltration, infiltration block, and regional or intraneural anesthesia. Direct infiltration is the method of choice with us, provided the infiltration of the tissues does not in any manner obscure the field of operation or predispose to the spread of infection. It is especially advantageous in abdominal work. Infiltration block may be described as direct infiltration between the field of operation and the central nervous system, and may be used where direct infiltration is contraindicated. Strict regional anesthesia is confined to blocking of the trigeminus, the brachial plexus, the intercostals and the sensory nerves of the upper and lower extremeties. Our choice of infiltration anesthesia is based upon the facility with which it may be established, the facility with which a knowledge of the method may be acquired, the dispatch with which complete anesthesia appears, and the certainty with which anesthesia may be obtained. Where indicated, it has but one drawback, and that is, that a larger amount of the solution is required than where strict regional methods are used. Assuming, however, that the dictum appearing above is correct, and that one may use in this manner a sufficient amount of solution to produce anesthesia—and experience would seem to justify the laying down of this dictum—this objection becomes untenable. The lesser objection that the introduction of a large amount of solution is irksome is met by the use of proper equipment.

Technic of Local. Assuming that all preliminaries have been looked after, and that the patient has been so treated from the moment of his first visit until the time of operation that his mind is in a proper state of tranquility and quiescence, the introduction of the solution is made as follows: An intradermal wheal is produced, after carefully cautioning the patient that he will feel a needle prick. After this all secondary wheals are made from beneath. Aside from the wheals no intradermal injections are made. Subdermal infiltration replaces the older method of traversing the proposed line of incision with a series of intradermal wheals. Once the line has been traversed with a subdermal infiltration, the needle is introduced at right angles until the first sensitive layer is met, no infiltration of the fat being made. In the abdominal wall, for instance, the aponeurosis is infiltrated and the needle point is then slowly advanced toward the peritoneum, with the fluid escaping. This has the effect of pushing the peritoneum inward, reducing the probability of perforation of this structure, altho its perforation is probably entirely harmless. Continuing this technic, a wall of anesthesia is built along the proposed line of incision, which in a transverse section would form a pyramid with its base at the peritoneal surface and about three inches in width, and its apex at the skin and about one inch in width.

With the proper equipment the infiltration of the abdominal wall requires approximately three minutes. The length and calibre of the needle, the amount of pressure used, the thickness of the abdominal wall, and the mental attitude of the patient are all governing factors. The patient who is tolerant may be injected much more quickly than one who is hypersensitive or unwilling to cooperate. The incision may be begun as soon as the infiltration is finished. In order to avoid a sensation of pressure, and a combative effort on the part of the patient, the incision is best made between towel pins, which elevate the abdominal wall. As the incision is advanced toward the peritoneal cavity, incompleteness of anesthesia will be indicated by a slight contraction of the muscular tissue, and should this occur the anesthesia should be reinforced at this point without awaiting the complaint of the patient which is sure to follow, the contraction of the muscles being a more delicate signal.

The position of the patient upon the table should be such that the force of gravity will operate in carrying the viscera which overlie the anticipated pathology out of the field. Anesthesia which abolishes the reflexes of the abdominal muscles will be evidenced by a retraction or falling inward of the peritoneum before it is incised. Should the peritoneum be found bulging, thus indicating a positive intraabdominal pressure, it is well to delay opening this structure and to reinforce the anesthesia before opening the abdomen. When the abdomen is opened the abdominal walls should be retracted vertically, and thru the means of tilting or perhaps the slightest amount of urging with long delicate tissue forceps, the moveable viscera should be coaxed out of the field. Intraabdominal examinations are best made by the use of the eye, reinforced, when necessary, by digital examination. With a perfect light, perfect retraction, and absence of the viscera which obscure the view, an ideal examination may be made.

Splanchnic Anesthesia. Splanchnic anesthesia may be used in either the upper or lower abdomen as an adjunct to direct infiltration. In two hundred instances we have performed operations in the upper abdomen entirely without pain by the use of this method, whereas before we adopted its use the patients were apt to suffer more or less distress during some particular part of the operation. In the lower abdomen splanchnic anesthesia may be employed by blocking at the pelvic brim thru the posterior peritoneum. For splanchnic anesthesia we have used on the average from one to two ounces of the stock solution.

Caudal Anthesia. Caudal anesthesia will in many instances make possible the performance of pelvic operations without pain to the patient, and it is a valuable adjunct when doing abdominopelvic surgery. For caudal anesthesia we have used on the average three ounces of the stock solution.

Test of Good Anesthesia. The test of good anesthesia in abdominal work, aside from the opinion of the patient, which should be the court of last resort, is the absence of expulsive effort. Sponges should not be necessary in much of the intraabdominal work under local anesthesia, excepting for the purpose of preventing soiling.

Factors Influencing The Scope. The scope of local anesthesia will quite obviously depend upon the training of the surgeon. The better his training, the more careful his technic, and the more highly developed the personnel of his staff, the broader will be the scope of local anesthesia in his clinic. The manner of the introduction of the anesthetic is a matter of secondary importance, compared with the making of a proper diagnosis, properly placing incisions, the employment of careful surgical technic, and attention to the comforts and general interests of the patient. Especial attention should be paid to the psychic side.

Psychic incompatibility, which is occasionally met with but more often talked about, is largely due to an imperfect knowledge of the method. It may be due to a former experience on the part of a patient, it may be due to a failure on the part of the surgeon to look carefully after the important details, and it may be due to the makeup of the patient, which in a certain percentage of cases is such that undergoing an operation while conscious is very distressing. The latter condition will be found difficult to meet, and when it can be anticipated it should be met by the use of preliminary medication or by giving general anesthesia.

Indications For Mixed Anesthesia. The best interests of local anesthesia demand that surgeons avoid the production of pain when using the method. It is so definitely proved that gas or ether are compatible with local anesthesia and that mixed anesthesia is most excellent, that there would seem to be little reason for the infliction of pain, even tho an operation has been begun under the local method. The indications, then, for mixed anesthesia should be the production of pain, and gas or ether should be added without hesitation, and their use should not be looked upon as an indication of failure on the part of the surgeon who attempts to use the local method.

Equipment. It is a well recognized fact that large experience and constant application in any field of endeavor will lead to a simplification of mehtods, and likewise to the development of paraphernalia with which to bring this about. The art of surgery furnishes no exception to this rule. Thus the bone, the brain, and the eye and ear surgeons, for example, have gradually developed special instruments and devices which facilitate the carrying out of many of the intricate technical details which are demanded by their respective specialties. Once accepted and adopted, and a familiarity with their use established, one wonders how it was possible to have gotten along without them. In the development of these indispensable accessories surgery has the humble artisan to thank in no small measure, and too little attention has been paid to the lessons which may be learned from the skilled mechanic, for instance, whose art bears so close an analogy to our own, when considered from the technical standpoint.

One meets with so many technical difficulties in the performance of surgical operations under local anesthesia that the necessity for excellency in mechanical equipment is especially manifest. Means for careful transportation of patients to and from the operating room, devices affording comfort to the patient while upon the operating table, good exposure of the operative field, and provision for adjusting and tilting the patient's body to any desired position during the operation are prime requisites when carrying out operative procedures under local anesthesia.

The rough handling of patients, uncomfortable positions upon the operating table, poor exposure and careless technic are more often the cause of failure than is the improper introduction of the anesthetic solution. These facts are exemplified so frequently as to be perfectly obvious.

One has only to witness the attempt of an abdominal surgeon of large experience in operating upon patients who have been given general anesthesia, but who has had little or no experience in operating upon patients who have been given local anesthesia to realize this fact. No matter how efficiently the patient may be blocked with local anesthesia, the surgeon's attempt to carry out an abdominal operation will prove futile, unless certain precepts are carefully adhered to. Seeing one of these surgeons thrust his hand into the abdomen of a patient who has been blocked by an expert is enough to make one realize the truth of this statement.

The technic commonly accepted by surgeons who work under general anesthesia is incompatible with the use of local anesthesia and, indeed, is too often incompatible with the best interests of the patient. It is a safe rule that only the minimum amount of trauma consistent with the carrying out of the surgical procedure should be permitted. In order, then, to use local anesthesia successfully, a more refined technic than the established one must be developed. The time is rapidly approaching when the appreciation of this fact will become widespread. In other words, surgeons are beginning to realize that the statement that certain procedures can not be carried out with dispatch and efficiency under local anesthesia frequently means the indictment of the one making the statement, rather than an indictment of the method. The final word in this regard has not been spoken, and the probabilities are that an honest difference of opinion will always remain with us in relation to this question. However, it is the author's feeling that the more extended use of local anesthesia and the technic which its use demands can not fail to be of benefit to the patient, both for the reasons mentioned above and for an additional reason, that its more frequent use will bring about the development of an improved surgical technic.

THE OPERATIVE TREATMENT OF OLD UNUNITED FRACTURE OF THE NECK OF THE FEMUR*

Everett O. Jones, M. D.
SEATTLE, WASH.

No attempt is made in this communication to present anything original or to give an extensive review of the literature, but simply to bring to your attention a practical method of relieving the disability in these well nigh helpless cripples. Only old fractures at a period of from some months to several years are under consideration, at a time when the neck has been absorbed and the atrophied head consists only of the articular cartilage, with no nourishment except the little that it may receive thru the joint structures.

All the authorities unite in saying that nonunion follows in a very large percentage of fractures of the neck of the femur. The experience of all of us will, I think, agree with this.

My experience, however, leads me to doubt the generally accepted dictum that this large percentage of failures is due to the age and general physical debility of the persons afflicted; on the contrary, that the chief factor is the very general failure to secure reduction and accurate coaptation of the fragments. That this is true is shown by the fact that, whereas with the conventional treatment of hip fractures the percentage of non-unions is very high, with the abduction method of Whitman the results are vastly better. In our own experience with the abduction method used in twenty-four patients of all ages between thirty and ninety we have had but two cases of non-union.

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*Read before the Thirty-Second Annual Meeting of Washington State Medical Association, Seattle, Wash., Sept. 1-2, 1921.

According to our observations rarifaction and bone atrohpy are very seldom present in the fresh fracture. As a result of the combined effects of low vitality and non-use, atrophy comes on in the first few weeks after injury. For this reason bone graft operations so frequently end in failure. Whatever stand one may take on the time-worn argument as to what is the exact function of the autogenous bone graft, whether it possesses active osteogenetic power or simply acts as a scaffold over which the osteoblasts may travel from one fragment to the other, there can be no doubt that the only kind of graft in which osteogenetic power can be at all shown is the bone inlay, where the various bone layers are brought in contact with each other, periosteum to periosteum, cortex to cortex and medulla to medulla.

On the other hand, it is quite certain that the intramedullary graft possesses no such function at all. The graft operation performed on the neck of the femur, whether a shaped dowel pin taken from the crest of the tibia or the whole shaft of the fibula be used, partakes of the character of an intramedullary graft, and it is quite probable that the successful results which are obtained are not due to any osteogenetic power in the graft but simply to the accurate reduction and firm fixation of the fragments, a necessary result of the open operation, but which could be just as well secured by abduction without any open operation at all.

In an article published in 1920, Henderson reports the experience of the Rochester Clinic with these cases. Of 120 who applied for treatment, in only twenty-six were conditions found sufficiently favorable to justify a bone graft and of these twenty-six operated cases, in ten only were the results satisfactory. Some time ago I had an opportunity of examining one of these cases. A middle aged farmer living in Canada received a fracture of the neck of the femur which was treated by the usual method with Buck's extension and a long side splint. After eight weeks, having received no results, the patient went to Rochester, where he was operated on and a dowel pin inserted thru the neck into the head of the fractured femur. At the time that I saw the patient, which was about two years after the operation, there was complete non-union and not only was the neck entirely absorbed but every vestige of the graft had disappeared, as shown by the radiograph.

In the face of such poor results it is not surprising that surgeons should attempt other methods of relieving the disability.

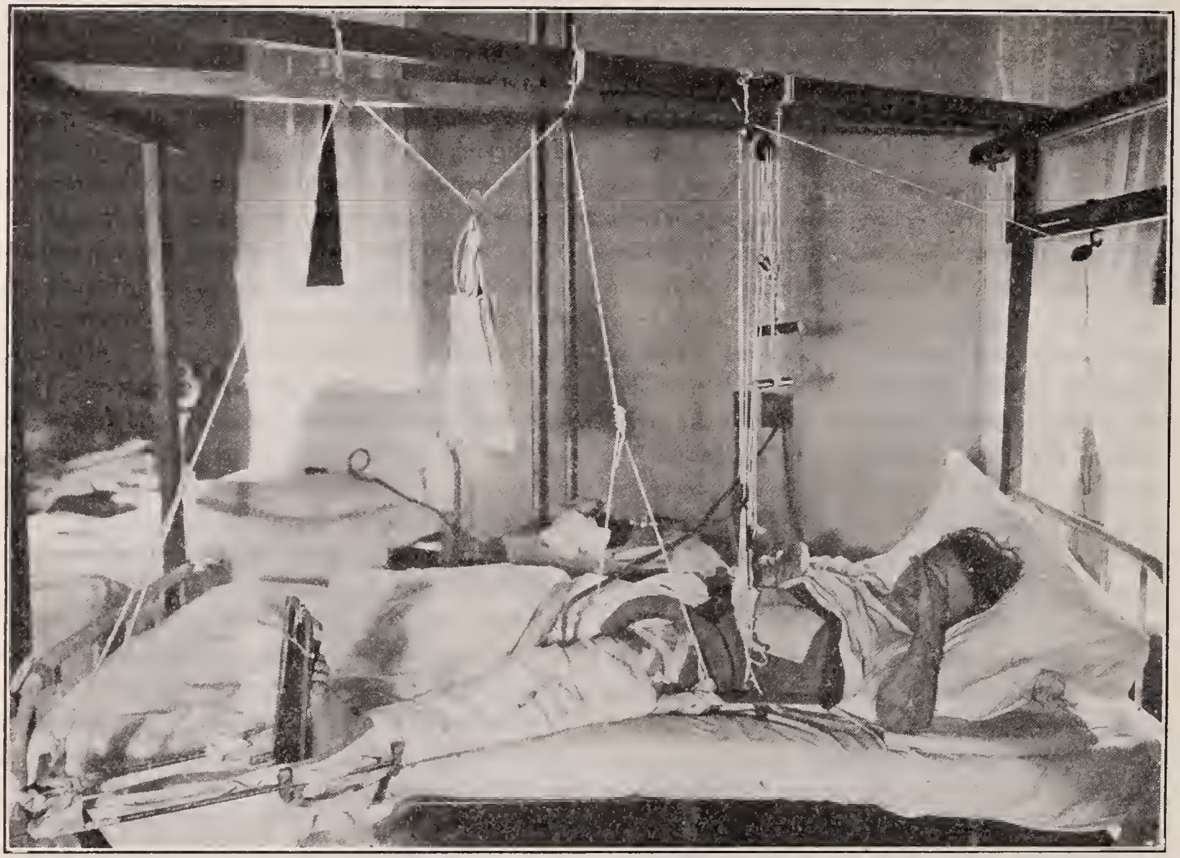
In a communication published in 1917 Brackett described an operation, by which the fractured surface of the head was freshened, the top of the trochanter cut off and the end applied directly to the freshened surface on the head by abducting the leg. He reported nine operations, seven of which were followed by success in varying degrees. This operation has not met with very general favor and it is not surprising, since for its success it depends upon firm bony union which is just as liable to fail as after a graft operation.

Another method proposed was to remove the head from the acetabulum, cut the muscular attachments from the top of the trochanter and thrust it into the empty acetabulum by abducting the leg. This is held in place by a cast until the soft parts have healed about the joint. At the meeting of the Canadian Medical Association, in Vancouver, in 1921, Gallaway, of Winnepeg, reported fifteen cases treated in this manner with satisfying results. The weak point in this procedure is the unstable weight bearing power of the limb and the liability of the femur to upward displacement.

Albee has proposed an operation which aims to overcome this defect. He divides the upper and outer portion of the trochanter together with the muscular attachments with a thin bladed chisel, but does not entirely separate it from the rest of the bone. Instead the fragment is gently pried outward until it stands out from the shaft at an angle of about 30 degrees. The inner portion of the trochanter, with what remains of the neck that may be present, is placed in the acetabulum and the leg held in a position of abduction by a cast.

More recently Whitman has proposed another operation. He cuts off the top of the trochanter together with its muscular attachments entirely, sets the top of the shaft in the acetabulum, then chisels a fresh surface on the outer side of the shaft, to which the detached trochanter is attached by means of Kangaroo tendon sutures.

In my opinion the operation proposed by Albee is a better procedure than the one last described, for the following reasons: First, It can be done in less time and with less manipulation, therefore the danger of shock is less, a factor which always must

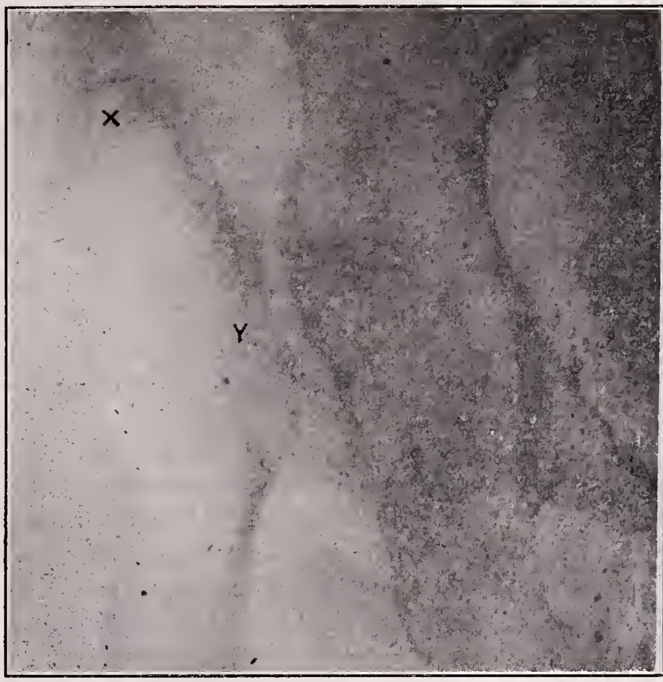


Patient after operation suspended in Buckner apparatus.

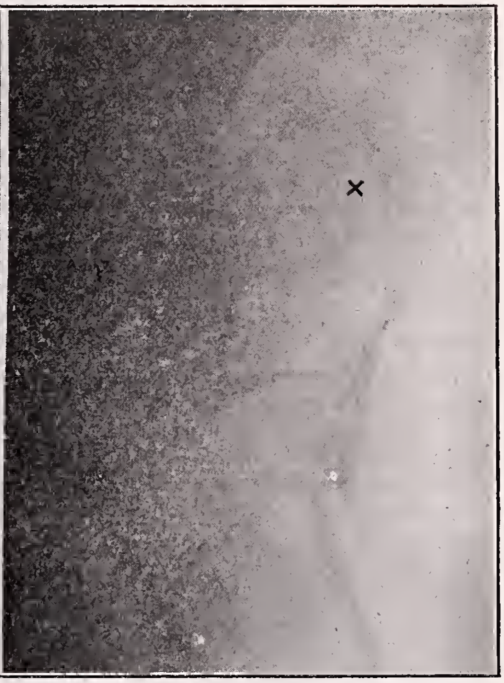
be taken into consideration with operations about the hip; second, it offers a wider surface for weight bearing and therefore greater stability, third, the Whitman operation depends for its success upon firm bony union between the fragments of trochanter and the side of the shaft. Failing in this, the result will be instability and liability to upward displacement.

The technic of the operation is very simple. An incision, starting at the anterior superior spine of the ilium, runs down to the base of the trochanter, bends at an obtuse angle and extends downward parallel to the shaft for a distance of three inches. A second incision, starting at the angle, extends backward two inches. The incision goes down thru the fascia lata and discloses the septum between the tensor fascia femoris and the gluteus medius. The tensor fascia femoris is retracted sharply to the median side, exposing the capsule of the joint. This is opened on its upper side widely enough to bring into view the whole fractured surface of the head. This is freshened with a curette. If the freshened surface should disclose normal cancellous bone which bleeds freely, and there be sufficient of a neck remaining to allow approximation before the trochanter impinges on the dorsum of the ilium, a bone graft operation may be undertaken with fair prospect of success.

However, in the cases under discussion this condition will be but rarely encountered. On the contrary, the head will be found to consist of a soft spongy material which exudes a thin, yellow, oily liquid. When this condition exists, any attempt at securing bony union will be futile. The head should be loosened and removed from the socket. By dropping the leg over the edge of the table, the trochanter may be forced up and out thru the wound. A chisel held horizontally is applied to the inner surface of the trochanter just below the tip. About half the thickness of the bone is cut thru the handle is gradually elevated, and the point driven downwards to near the base of the trochanter. Being careful not to break the fragments entirely off from the shaft, it is gently pushed until it stands out at an angle of about 30 degrees.



Case 2. Before operation. X, great trochanter. Y, site of fracture of neck.



Case 2. After operation. X, great trochanter loosened from shaft. Y. new head of bone in acetabulum.

Then the rest of the trochanter is shaped up with cutting pliers and thrust into the socket by abducting the leg, the pried out fragment riding over the upper rim of the acetabulum. The leg is held in position, while the wound is closed and a cast applied. The cast should extend from the chest to the toes on the affetced limb and take in the well leg down to the knee. When the cast has dried it may be swung from a Balkan frame with canvas belts under the body and legs, which allows a certain amount of movement in bed.

We have found that the use of the apparatus, devised by my associate, Dr. Buckner, for the treatment of fresh fractures of the neck of the femur, affords just as firm fixation and is more comfortable to the patient, since it allows a greater freedom of motion. The apparatus consists of a body piece very like a Taylor brace and an ordinary Thomas splint, connected together by adjustable angle irons which fix the limb in any degree of abduction desired. After twelve weeks fixation the patient is gotten up with a Thomas walking splint, which should be used for at least two months longer.

The following case histories are given for illustrations:

Case 1. Mrs. W., 53 years of age, farmer's wife. Fractured her right hip eighteen months previously. Was diagnosed as an impacted fracture in good position and left in bed without apparatus for twelve weeks. When she got up there was complete non-union, shortening, pain and inability to bear weight. Has been a confirmed cripple ever since.

She was operated on one year ago by the method described. The result has been very satisfactory. There is one inch shortening, no pain, walks with a limp but can get about without either crutches or cane and is able to do all her housework.

Case 2. Mrs. T., 65 years of age. Fractured her right hip five years ago. Received no treatment except rest in bed. Has been a confirmed invalid ever since, unable to walk even with crutches. There is two and three-fourths inch shortening.

Operation successful. Firm union which is painless. Still using cruthes which probably can be discarded soon. There is a little less than an inch of shortening.

Case 3. Mrs. A., widow, 42 years of age. This case is one of our two failures to secure union by the abduction method of treatment. She was first seen about two weeks after she fractured the neck of her left femur, the result of a rather insignificant fall. Radiographs disclosed marked separation with very little evidences of atrophy of the bone. By placing the limb in abduction the fracture was very accurately reduced. The patient had a four plus Wassermann but had never had any symptoms of syphilitic infection. Her husband had died a few years previously of what was diagnosed as cerebral syphilis. The patient was left in a cast for twelve weeks, when it was removed, it was found that there was complete non-union.

Operation was advised but declined by the patient and she disappeared, and was not seen again for fifteen months, when she returned, stating that she was ready to have an operation performed. She had three inches shortening. As a measure of precaution she was first given vigorous antisyphilitic treatment, until a negative Wassermann was secured. At the operation it was found that the trochanter was so thin and atrophied that it was impossible to split it longitudinally after the method of Albee, so it was entirely separated and attached to the outer side of the shaft lower down, as described in the Whitman method. The patient is still under treatment but, from the looks of the radiograph, union is taking place between the fragment and the shaft. There will be a little over one inch of shortening.

In conclusion, let me say that, with the general adoption of the abduction method of treating hip fractures, the number of these distressing cases of non-union will become less and less. But there will always be a small number that will demand operative treatment.

The field for bone graft operation in these fractures is always going to be a rather limited one, since the majority of these helpless cripples, the result of non-union combined with atrophy, are going to be best helped by some form of a reconstruction operation, which does not depend upon osteogenesis for its success. Such an operation will give these people limbs which, tho short and stiff, are useful, since they are stable and painless, and will make them again useful members of society.

DISLOCATIONS AND FRACTURES OF THE ATLAS.*

R. D. Forbes, F. R. C. S. (Eng.), F. A. C. S.
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It is only in recent years that a proper interpretation has been made of those cases of stiff neck which have followed an indirect trauma. Injury to the ligaments or muscles was considered a sufficient diagnosis, and without further investigation treatment was applied on this basis. Corner's paper on "Rotary Dislocation of the Atlas," published in 1907, represented the first serious attempt to study this condition in a comprehensive way. His work has recently been supplemented by Jefferson, who reviews in a similar way the subject of fractures of the atlas.

There are many varieties of dislocation of the atlas. In fact, they seem almost as numerous as the anatomic possibilities would lead one to expect and, except the rotary form, are nearly always fatal. The rotary form is not rare and a proper reading of radiograms in injuries of this region has enabled its diagnosis to be more frequently made. It is true that in the majority of cases there is not a complete dislocation and, where this does occur, there is invariably an associated lesion of other vertebrae. Subluxation, or hyperrotation, is more frequent and the difficulty of exact diagnosis is proportionately great.

Corner analyzed twenty cases of rotary dislocation, collected from the literature and his own practice. In less than half diagnosis had been made postmortem, and in nearly all of these there was an associated fracture of the odontoid process of the axis. Where a clinical diagnosis only had been made the findings were so indefinite as to exclude this lesion as being anything more than a possibility. A fracture of the odontoid was certain in one case only, and there it was expelled as a sequestrum about three years later from a retropharyngeal abscess.

In producing this lesion in the cadaver I found it almost impossible to do so without extensive cutting of ligaments or fracturing the odontoid but, where this was done and x-rays made of the vertebrae in the dislocated position, it seemed easy to make a diagnosis. There was greater difficulty in estimating the lesion, where the odontoid fracture and hyperrotation combined to fix the position and prevent reduction. With a complete dislocation examination of the posterior pharyngeal wall permitted an easy diagnosis, for the two points mentioned by Corner, viz., the uncovered articular surface of the axis on one side and the prominent lateral mass of the atlas with its inferior articular surface on the other side, were unmistakable. This is an important clinical point.

A radiogram of the normal bones taken from the front shows with great distinctness the two clear spaces of the atlantoaxial joint, where they are lined by hyaline cartilage. Nothing less than a complete dislocation will obliterate either of these spaces, this being also an important point in a radiographic diagnosis. The lateral view of these vertebrae, where a complete dislocation has been made, shows its nature unmistakably; but in a lesser degree, or where an odontoid fracture exists with the subluxation, confusion is much more liable. It is here that George has done so much to enable an accurate interpretation to be made. Where the picture can be taken in the so-called true lateral position, his method is most helpful.

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*Read before North Pacific Surgical Association, Spokane, Wash., Dec. 16, 1920.

A clinical examination in a case of rotary dislocation of the atlas will reveal the following facts:

1. The chin will be rotated toward the side opposite the dislocation, somewhat flexed on the chest, with the back of the head tilted toward the opposite shoulder.
2. The transverse process will be found well forward on the dislocated side and its prominence replaced by a hollow space on the opposite side.
3. Examination of the posterior pharyngeal wall will reveal the two prominences mentioned.
4. There will be limitation of movement toward either side, but more marked toward that of the dislocation.
5. Skiagrams taken thru the mouth and laterally, after the method of George, will reveal the characteristic deformity.

Forty-six cases of fracture of the atlas were collected by Jefferson* and represent the total number recorded to date. He emphasizes the importance of anatomic study of the bone to permit a proper understanding of the etiology, mechanism of production, complications and symptoms of its fracture. Its many peculiarities in relationship to these fractures and its different morphology from other cervical vertebrae explain its usual consideration in a class apart.

Thus the general direction of the superior articular surfaces is inward and upward, that of the inferior articular surfaces downward and outward, so that a force applied to the head or spine would pass thru the lateral masses in an angular direction, and have the effect of separating them, with a tendency to make its normal oval a transverse one instead of anteroposterior. A spring or tension fracture of the arches would tend to result as in the familiar wish-bone experiment. The cord is protected by this centrifugal tendency and its freedom from injury is noted in twenty of the twenty-one cases of isolated fractures reported.

Where complications are present many things are possible and, altho sudden death is comparatively frequent, nothing more than a stiffness of the neck may be the happy result. In three-fourths of the complicated cases a fracture of the odontoid was present, whereas a rotary dislocation was a complicating factor in about one-half of the cases. The result is expressed, of course, in the higher mortality of 60 per cent, as opposed to 40 per cent, where the fracture is an isolated one.

Clinically its fracture is characterized by rigidity of the muscles of the neck with limitation of movement; in other words, stiff neck. Nodding movements are painful where the posterior arch is involved, while rotary movements are mostly affected where the anterior arch or lateral masses are involved, even tho the odontoid be intact.

A symptom of some importance is involvement by hyperthesia or anesthesia of the great occipital nerve. Its close association with the bone makes it easy to understand its frequent implication, more than half the cases having this symptom. Dysphagia and thick speech are occasionally present, the cause being possibly of central origin.

Skiagraphy is not always successful in determining a fracture of the atlas and a sharp delineation with clear radiograms is necessary. As in fractures of other parts of the bone, fracture of the posterior arch is sometimes most easily shown, but in other cases it is necessary to diagnose it by deduction after employing the methods of George.

The following case is reported as one of fracture of the atlas, probably the posterior arch, complicated by a fracture of the odontoid process and a rotary subluxation.

Mike Martin, aged forty-six, an otherwise healthy man of athletic build, consulted me on March 27, 1920, complaining of a stiff neck and pain in the back of his head, mostly on the right side.

Thirty-eight days previously he had slipped on some stones, while walking on a sloping gravel beach, and in an effort to save himself had struck his head forcibly on the ground. He attempted to rise but his head fell foreward and had to be supported by both hands before he could do so. He was able to walk home and, on the advice of his physician, remained in bed for several days. He hoped that he was then well enough to go to work and made an effort to get up and be about as before his injury. He found, however, that he could not look upward or bend his head foreward without great pain, while the pain in the back of his head became constant and severe. He then noticed a difficulty in swallowing, made somewhat easier by turning his head toward the left. As

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1*. Boston Medical and Surgical Journal, December 25, 1919.

no relief was obtainable, he left Alaska and came to Seattle for treatment.

Examination showed his condition as follows: The head was held in a position typical of a rotary dislocation of the atlas, the chin being downward and to the left (fig 1). He held it rigidly and was unable to nod or rotate it in either direction without great pain. He endeavored to prevent this by supporting the chin or occiput. The mouth could be opened only partially and a proper examination of the pharynx was not possible. Tenderness in the right suboccipital triangle was pronounced and pressure on the right transverse process was unbearable. A marked hyperesthesia was present in the area of distribution of the great occipital nerve.

A radiogram taken thru the mouth showed very clearly that a subluxation had taken place, the articular surface of the axis on the left side showing very prominently, while on the right side it was concealed by the articular surface and lateral mass of the atlas. A radiogram taken laterally showed the atlas to be placed foreward on the axis and an abnormal relationship to exist between the atlas and axis posterior to the central canal. The interpretation was that a fracture of the odontoid with subluxation was present.

After advising him of the possibilities, a general anesthetic was administered in the hospital and an attempt made to reduce the dislocation somewhat after the method of Walton. Examination of the pharynx at this time was easy and revealed in a modified degree the two prominences mentioned by Corner. Rotation to the left was not markedly limited, but to the right there was practically none. At the height of rotation to the left the patient suddenly stopped breathing, his pupils dilated, and he became cyanotic, giving every indication of an impending fatality. However, with rotation in the opposite direction and a hypodermic injection of camphor in oil he slowly recovered. His head was then supported on a plaster of Paris collar, moulded over the shoulder and he was kept in bed for a few days. On recovering from the anesthetic he expressed himself as being entirely free from pain with a complete absence of difficulty in swallowing (fig 2). This support was removed in a couple of weeks and a collar of leather with a metal support fashioned as a rest for his head, permitting a moderate degree of movement.

A report three months later was to the effect that, whereas some stiffness of the neck remained, he was free from pain and discomfort. A final report a year later showed him to be free from complications.

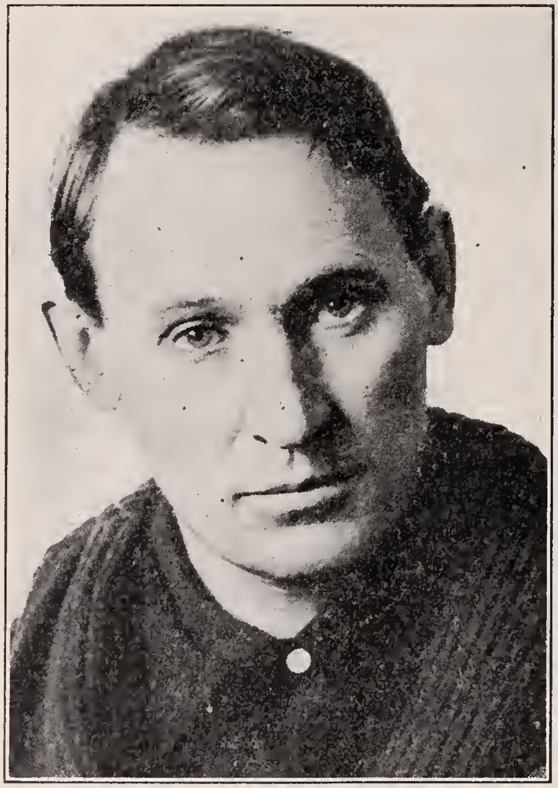

Fig. 1. Position of head before reduction.

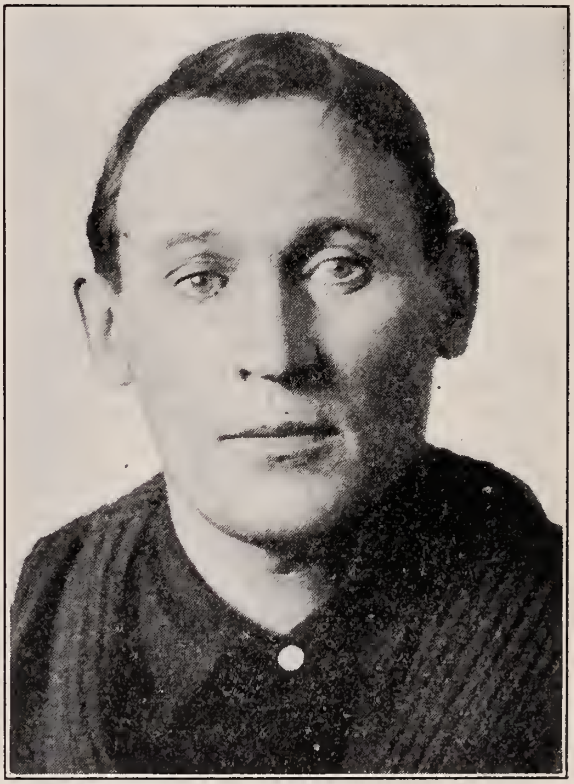

Fig. 2. Position after partial reduction.

FRACTURE OF THE CARPAL SCAPHOID.*

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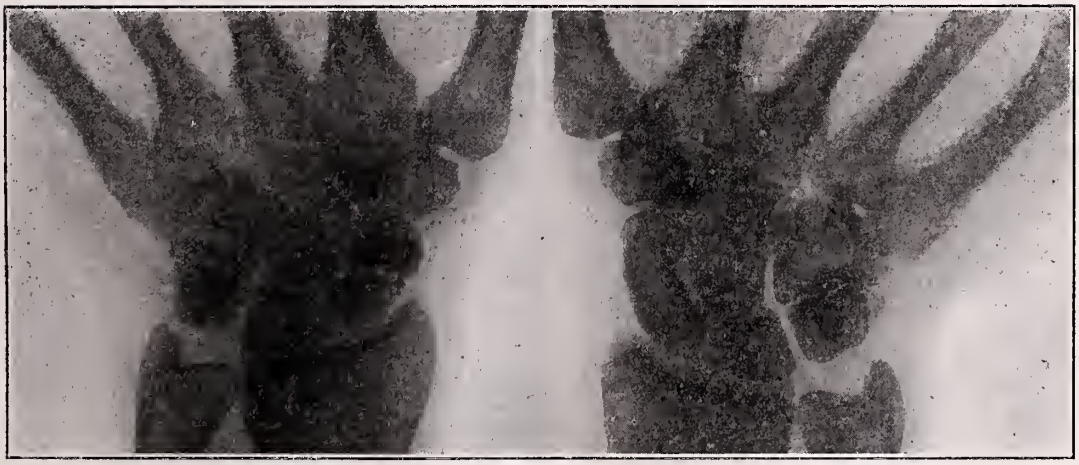
The carpal scaphoid is more frequently fractured than any other carpal bone. It makes, according to Speese and Skillern, at least five-tenths per cent of all the fractures of the skeleton, but these observers state that this percentage is too low, and support their contention by mentioning Murphy's statement to the effect that one to two per cent would be a more accurate estimation in his experience.

When more surgeons are impressed with the necessity of studying more carefully the so-called "sprains and contusions" of the wrist before they make a diagnosis, then will our statistics be more correct, and the frequency of this injury will become apparent. That this particular fracture has been overlooked in many cases has been pointed out many times before, and in the majority of cases this error has been due to incomplete observation.



Left. Note scaphoid fractured in three fragments. Right. Note normal scaphoid.

Because of this discrepancy in diagnosis, as well as in the statistics, we are prompted to report this case, and to call attention again to the history, physical findings and mechanics of the fracture of the carpal scaphoid.

"Case 3250." A college athlete, aged 22, came in complaining of a painful left wrist. The onset was dated the previous year, when rowing on the college crew. It began to pain him when he feathered his oar, and would continue thruout the day's practice. It bothered him some during the rest of the day, but not so noticeably. This symptom persisted thruout the rowing season, but he never noticed any swelling, redness or discoloration at any time. After the rowing season the symptoms disappeared almost entirely. Certain twisting motions, however, would cause slight pain.

The patient came to the Clinic at this time because he began rowing again, and complained that his wrist was giving him considerable trouble. It would hurt more at the beginning of the day's practice than after it had been used awhile. He was never able to give any definite history of injury to that wrist. Physical examination revealed practically nothing. Pressure in the "anatomic snuff-box" was not painful in either adduction or abduction. Tapping on the distal ends of the first, second and third metacarpals with the hand in radial-flexion produces no pain. Repeating the motion of feathering an oar with presure against the hand would cause some pain.

An x-ray examination, however, displayed the causative factor in a fracture of carpal scaphoid in three pieces. The patient could not be induced to stop rowing, so he was directed to bathe his wrist frequently in hot water and give it as much rest as possible. After the rowing season was over, he had no further trouble, and felt that he had a good wrist. He was advised, however, to notify us of any change, as we did not consider it advisable to leave the injured wrist go untreated.

This case not only illustrates the possibility of overlooking this injury, but also the unreliability of history and physical examination. Possibly, if the wrist was examined between rowing periods, there would be no pain elicited with and of type manipulation. It also illustrates that this fracture can exist without causing any symptoms as long as ordinary use is made of the part. We are of the opinion that sometime this patient must have had an injury, may be many years previously, sufficient to break this bone, and that it gave no symptoms until strenuous exercise was indulged in, and it may never cause him trouble again as long as excessive exercise is avoided.

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*From the Eagleson Clinic.

The ordinary history of this type of fracture is that of transmission of a blow thru the hand to the carpus, especially with the hand hyperextended. A painful wrist follows immediately, associated possibly with ecchymosis and swelling.

The diagnosis is generally made with the aid of such history, and by obtaining a pain upon pressure in the "anatomic snuff-box," or by the method suggested by Dr. Roger T. Vaughan, of Chicago. This is, "holding the hand in radial-flexion so as to bring the scaphoid between the os magnum and the lower end of the radius, the patient flexes his fingers and then, with the percussion hammer, the heads of the metacarpal bones are tapped, each in turn, and in striking the head of the third metacarpal the os magnum is driven against the scaphoid and in the case of fracture of the scaphoid even a very slight tap causes intense pain. Not only does tapping the third metacarpal cause this sign, but tapping of the first and second metacarpals, which transmit the impluse to the scaphoid by way of the trapezium and trapezoid, also produces marked pain. The fourth and fifth metacarpals, however, are insensitive when tapped, and thus a fracture of the scaphoid may be differentiated from one of the semilunar. Furthermore, the "tapping-pain" in scaphoid fracture is most marked in ulnar flexion." The x-ray, however, offers the greatest aid, as is seen in the case reported.

The mechanical factors to be considered in this injury cannot be better presented than by quoting from the following observers:

Speese and Skillern[1]. "The cause of scaphoid fracture is very similar to that of fractures of the base of the radius, and indeed simultaneous fracture of both these bones may be found in certain cases. The etiologic factors are, therefore, falls upon the hand, back-firing of a motor while cranking and direct violence. The types of fracture are the simple transverse, the transverse with impaction and fracture of the tuberosity. In radial abduction of the hand the scaphoid lies between the radius and the os magnum, and hence acts as a buffer to vulnerating force transmitted by either of these bones; when jammed in this manner it is liable to be broken."

Zuccari[2]. "Bouche and Zuccari caused it experimentally by a blow on the thenar eminence with the hand in dorsiflexion. The relation of it to the neighboring bones and its form and structure increases its liability to fracture."

Dr. Franklin B. McCarty[3]. "The scaphoid has roughly the shape of a hollowed-out crescent with blunt ends and a constricted neck near the middle. The proximal half is almost entirely articular and the distal portion is largely fixed by ligamentous attachments. With the hand hanging by the side the concavity of the bone fits snugly against the rounded surface of the os magnum, so that in falls with the wrist extended and not deviated to either side the two bones act practically as one, and the force is transmitted higher up, with resultant injury to the radius or to the styloid of the ulna. With the hand extended and deviated to the ulnar side, however, there is a certain amount of play in the wrist-joint, the proximal articular portion of the scaphoid moving laterally, while the distal portion remains fixed in place. This change in position may be easily demonstrated by placing the finger-tip over the upper end of the snuff-box and alternately adducting and abducting the hand. As a result of this motion the long axis of the scaphoid lies almost directly in line with the forearm and the entire force of the blow is transmitted thru it. Fracture occurs at the narrowest and weakest part—the middle of the arch, the concavity of which is reinforced by bony support from the os magnum, but the convexity of which is unsupported except by ligaments. The same situation exists as when a curved stick, thick at both ends and narrow in the middle, is stood endwise on the ground and struck a heavy blow on the upper end. Naturally, the fracture occurs transversely across the narrowest portion. It is notable that fracture of the scaphoid is rarely complicated by other bony injury, whereas fracture of the lower end of the radius is commonly accompanied by fracture of the ulnar styloid."

In addition to these mechanical factors, so well described, contributing to this injury, we must also consider the embryologic development of this bone, its comparative anatomy and its significance in human phylogeny. It has been known for many years that at an early stage in the embryologic development of the human carpus there appears a cartilaginous nucleus which in later stages of development disappears and can not be found as a separate entity. It is agreed by embryologists and anatomists that this is the analogue of the os centrale, which persists in the carpus of many mammalian forms, but which does not produce a carpal in the human hand. The fate of this cartilaginous nodule has served as a stimulus for considerable investigation and controversy.

Many students of this subject are now agreeing with Jones[4] who says: "The index finger is small in the lower primates, and the thumb is weak; but they are possessed of much mobility, and four independent little blocks of bone lie between their metacarpals and the radius. In man, however, the thumb is large, and in man and to a lesser extent in the gorilla and chimpanzee the index finger has become an important and specialized digit. In these three types there is a change in the carpus. The trapezium and trapezoid continue to be separate elements, but at their base they articulate with a single large bone—the human scaphoid. The os centrale has disappeared as a separate entity, but its fate in phylogeny appears to be perfectly clear, for its site in the simian carpus is exactly occupied by the distinct distal portion of the human scaphoid. A study of comparative anatomy, therefore, gives irresistible support to the embryologic finding that the human scaphoid is a compound bone, being composed of the primitive scaphoid in its proximal part and the preaxially displaced os centrale in its distal part. And, from a functional point of view, we may regard this as another specialization of the functions of the human index finger, a specialization which finds some mimicry in the two African anthropoid apes. The formation of a large and compound bone mass at the base of the index, we imagine, is a recent acquirement, and the scaphoid altho such a large mass, is the last of all the carpal bones to ossify."

SUMMARY.

1. The carpal scaphoid is more frequently fractured than any other carpal bone, and more frequently than statistics describe.

2. Ordinarily there is a distinct typical history of injury and typical physical findings, but these evidences may be lacking.

3. It is often overlooked under the diagnosis of "wrist sprain and wrist contusion."

4. Mechanical factors can be offered to explain why it is susceptible to fracture.

5. But its form, its embryologic development and its relation to human phylogeny offer certain information as to the frequency and peculiarity of this injury.

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902 Boren Ave.

THE TREATMENT OF CHRONIC OSTEOMYELITIS.*

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Previous to 1916 the principles of the treatment of chronic osteomyelitis were based almost entirely upon the type of case following the ordinary osteomyelitis. That the treatment was most ineffective is shown by the fact that many of the cases were submitted to operation many times, frequently apparently cured, only to have sinuses reopen, and dead bone continue to be extruded.

A lengthy review of the treatment at that time, a treatment that we think is still too much in vogue, is not necessary in this paper. Briefly, it consisted of incisions, usually entirely too small, curetting bony cavities, "scraping the bone," as the laity are wont to say, followed by packing various antiseptic washes and rubber tubes for drainage. Occasionally this treatment succeeded but usually not. The usual thing was for the patient to finally get disgusted with the surgeon, or the surgeon get disgusted with the patient, and the case wander on, only to repeat the performance a few months or a year or so later.

As a result of the study of literally hundreds of thousands of cases occuring in the late war, certain very definite changes in the treatment have taken place. Treatment has been worked out in a more exact manner, with a resulting diminution in the period of convalascence and an improvement in the final functional results. Whether the cause of chronic osteomyelitis comes from within, that is from the blood stream, or from without, as in the case of gun shot wounds, compound fractures, etc., makes little difference in the treatment. Chronic osteomyelitis means necrosed bone, either entirely broken down or in the form of sequestra of various sizes and shapes. In either event the problem is the same, namely, to get rid of all dead material, to prevent live tissues, bony or otherwise, from dying, to close all sinuses and to preserve the function of the part. It is no great surgical triumph to cure an infected tibia and leave the patient with a foot that is little better than an artificial foot. These problems are all interconnected, and will be so considered.

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*Read before Spokane County Medical Society, Spokane, Wash., April, 1921.

The continual drainage from a sinus, frequently many sinuses, with the occasional sloughing off of dead bone, simply means that Nature is doing her best to rid the patient of the disease, and is finding the task too great. Drainage is too far from complete, pus dams up, and as old sequestra are cast out new bone is infected, spicules of bone find their lessened blood supply still more embarassed, and finally cease the struggle, and go to swell the seemingly endless procession.

The problem primarily, then, is to get the infected region in a condition where healing is possible, and secondarily to keep it in that condition until healing is complete. Sequestra are of various sizes and shapes, and the bony cavities containing such sequestra are also of various sizes and shapes. Always these are the irregular shaped ridges, cavities and undercuts that are not draining, and which always have lessened blood supply, and which are always more or less infected. Sometimes such areas are close together, sometimes they are fairly well separated, sometimes they embrace the entire bone from epiphysis to epiphysis.

In any event, the first step must be to convert the irregular shaped area or areas, as the case may be, into one large cavity with shallow walls or no walls at all, with no undercuts, no roughened ridges, no spicules and no abrupt ends. The walls, if walls are allowed to remain, and the floor should be as smooth as it is possible for a sharp chisel to make them. This means a long incision,the length depending entirely upon the extent of the infected bone. If the entire diaphysis is involved, then that should be the length of the incision. Having exposed the bone for a space above and below the involved area, an ordinary carpenter's chisel, almost if not quite as broad as the bone itself, may well be used to remove the top and frequently the sides of the bone, cutting away bony tissue, until a perfectly smooth cavity is left. Frequenly this will mean that no bony cavity will remain, merely the flat bone in the bottom, and the over-hanging walls of soft parts.

The temptation is always to remove too little rather than too much bone. We feel that a curette should have no place in this operation. After such a radical removal as we have described, there may be only a half or a third or possibly a fourth of the original bone remaining. What happens here is well answered by Wolfe's law. The size of bone, the shape of bone and the internal architecture of bone are determined by function. When the demand is made for increased strength, the bone will hypertrophy to meet the increased demand.

It is our custom generally to use no skin sutures. The entire wound is considered as infected, and therefore skin sutures can ouly work to defeat the thoro cleansing of the wound. For the same reason no packing whatever is used. A gauze pack certainly cannot act as a drain. Instead it traumatizes both the soft parts and bony parts, and serves to keep up the infection. It is our custom to depend entirely upon Dakin's solution, and therefore the small rubber tubes are placed loosely in the wound, being careful that the tubes are sufficient in number and so arranged that every part of the wound is constantly bathed in the solution. Over the tubes and covering the entire part, large gauze and cotton pads are placed.

The after treatment consists merely in following out the technic as advocated by Carrel. It is hardly necessary in this paper to go into details as to the Carrel-Dakin treatment. I might say, however, that anyone who has not used this treatment, and who may be unfamiliar with its application, could spend no more profitable evening than in a careful study of the little volume written by Carrel. In passing I might also say that there is a vast difference between the use of Dakin's solution and the application of the Carrel-Dakin treatment. Whether the results obtained are due to 95 per cent Carrel and 5 per cent Dakin, as some have maintained. I do not care to say. I do say, however, that in our hands, Dakin's solution alone will not accomplish the purpose, nor will the Carrel part of the treatment, alone do so. Nor have we been able to get the results with any substitute for Dakin solution.

Following the radical operation as before mentioned, and the institution of the Carrel-Dakin treatment, these patients immediately become comfortable, their temperature quickly drops to normal, and within a very few days there is no pus. Within a couple of weeks wound cultures will usually be almost negative, and in many instances, were it not for putting too much tension on the soft parts, the wound could be closed. Recently in a case of very extensive osteomyelitis of the tibia, associated with such a marked bowing that the foul smelling necrotic bone was exposed to the air over an area several inches in diameter, the wound cultures were negative inside of three weeks from the time of the radical operation. The entire wound was then covered with skin grafts, all of which lived.

It used to be thought that, when a patient came into the hospital with an acute osteomyelitis, a recovery was not to be expected under a year and a half or two years. With the radical drainage of the acute oseomyelitis, followed in a couple of months by a radical operation such as we are advocating, the convalescence can be shortened to three or four months, and the patient be discharged in such a condition that sinuses are not constantly recurring.

Finally, I should like to emphasize the ever-present necessity of carefully splinting these cases, so that when recovery does take place, the patient does not have to contend with a stiff plantar flexed ankle or an acutely flexed knee. The knee, the ankle or the hip can be kept moving, and can be splinted so that contractures do not occur. Thus by the time wounds are healed, the part is in condition to perform its function.

702 Paulsen Building.

A NEW BONE SAW.*

MITCHELL LANGWORTHY, M. D.

SPOKANE, WASH.

The recognized imperfections of bone saws at present offered for use to surgeons have inspired the construction of the one here exhibited, which it is believed possesses features of merit which will commend it to every surgeon. The author is preparing a detailed description of the saw which will be published in the near future.

The accompanying illustrations show the apparatus, assembled with one of the saws and the manner of holding it while in use. Some of the reasons for devising it and some of its features of superiority are briefly as follows:

1. The need of an instrument which could be used easily in deep wounds, such as in a bone graft of the femur.

2. The need of a more accurately and easily controlled saw.

3. The strength and simplicity of the parts.

Revolving as it does on the end of an arm and in the direction which the pictures show, I believe that this saw is the best that we have yet for use in deep wounds. The manner in which this saw is held, that is, like a pen or pencil, with the grip of the right hand near the saw, with the weight of the apparatus carried in the left hand, gives one an ease and accuracy of control which no other instrument provides.

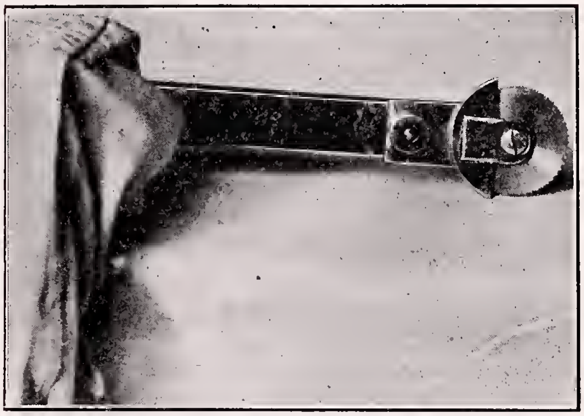

Fig. 1. The motor, the metal arm and the small saw assembled for use. The motor and electric cord are covered with a heavy canvas bag.

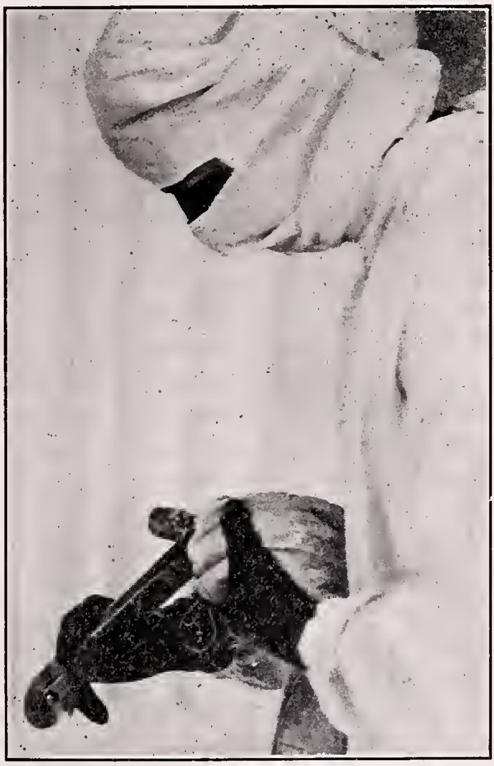

Fig. 2. The right hand grips the saw like a pencil. The left hand holds the motor. The saw revolves and cuts in direct line with the eye.

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*Presented before the Thirty-Second Meeting of Washington State Medical Association, Seattle, Wash., Sept. 1-2, 1921.

CECAL TUBERCULOSIS.*

W. D. Read, M. D., F. A. C. S.
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As individuals we are constantly striving for an orderly arrangement of symptoms, so that we may interpret from them the pathology from which they originate. Patients interpret their symptoms so differently and disease processes vary so much in their manifestations regarding virulence, anatomic location, etc., and the human body reacts against infection so differently, that closely related pathologic conditions are oftentimes difficult to interpret. Of the many pathologic processes that the flesh is heir to, none present so many diagnostic difficulties as tuberculosis.

Tuberculosis of the intestinal tract is fairly common. In fact, it has been estimated that about two out of three suffering from phthisis have tuberculous intestinal ulceration. At postmortems extensive destructive tuberculous processes are often found, which have given very few localizing symptoms during life. If these last two statements are true, we must be led to the conclusion that either the consumptive's sensory nervous system is at fault, or uncomplicated intestinal tuberculous ulceration presents few if any prominent subjective symptoms.

Intestinal tuberculosis is true to its kind. The tubercle bacilli produce a characteristic change in the tissues. The toxin eliminated by the bacilli causes an outpouring of lymphocytes, a proliferation of epithelioid cells (tissue cells), with an occasional giant cell. The process, if a losing one for the body, takes a characteristc course, namely, the center of the tubercle, separated as it is from nourishment by the pressure of the closely crowded cells, overwhelmed by toxin, dies (caseates). If close to the surface, an open ulcer results. This ulcer may remain solitary, but usually several in close proximity coalesce and form the typical tuberculous ulceration, superficial, irregular, undermined, with elevated edges, often indurated, with a grayish base. The lymphatic and blood vessels, running circularly, cause the ulcer to spread in a like direction and not longitudinally. The reaction of the inflamed area produces a plentiful supply of fibrous tissue, so that often in these tuberculous ulcerations, one part is healing, while another is spreading. The contraction of the cicatricial tissue leads to stenosis of the bowel, and frequently several strictures are found scattered over a considerable length of intestine.

There are several reasons why tuberculous ulceration selects the ileocecal region. Here lymphoid tissue is most abundant, occurring as solitary follicles and Peyer's patches. The lymphoid tissue acts the same as in the lymphatic glands, filtering and guarding against the absorption of septic material. Stagnation of the fecal stream is here most marked, and the narrowing of the ileocecal valve and the directing of the intestinal stream to one particular area adds a certain mechanical irritation.

The prevalence of catarrhal inflammatory conditions in this particular region is more than a mere coincidence. Fenwick and Dodwell, in their investigation of many cases, noted that 85 per cent of tuberculous ulcerations of the intestine involved the ileocecal region, and this region was the sole seat of the disease in 10 per cent of the cases. It is fair to assume that, if the reactive forces of the body are minus, due to the presence of an advancing tuberculosis of the lungs or other portion of the body, and an ulceration of the ileocecal region has occurred, its general character will be that of the ordinary ulcerocaseous form, and the grade of ulceration usually portrays the reactive influence of the body.

Ileocecal tuberculosis, as an entity and from a morbid anatomic standpoint, occurs in several rather distinct forms. The different forms are occasionally true types, but more frequently occur as mixtures of the several varieties. For a matter of convenience the types are considered as (1) the usual ulcerative, (2) the hypertrophic, and a mixed variety, namely, (3) ulcerative plus an infection.

It is generally accepted that the ulcerative and hypertrophic varieties may be primary, tho usually secondary . The ulcerative is oftener secondary to some tuberculous focus elsewhere in the body. The primary cause thus being present, predisposing factors, such as faulty digestion, resulting in catarrhal troubles or constipation, swallowed foreign bodies that produce injury to the mucous membrane, specific fevers and mechanical traumatisms would have to be considered.

It is interesting to note that in cases of old standing hernias, tuberculous infection of the hernial sac and the hernial contents is frequently found.

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Nicolas Senn published a series of thirteen cases of tuberculosis of the bowel and the hernial sac. Cases are reported where traumatism of the abdominal parietes was followed by tuberculous trouble. This, of course, might have been a mere coincidence but nevertheless is interesting.

These factors, with the previously mentioned reasons, as stagnation, lymphoid tissue, etc., assist in the selection of a site for the swallowed tubercule bacillus to carry on its life work. Hematogenous infection occurs, and it is thought that the hypertrophic type more often follows that form of infection. Harbitz, of Christiana, refers to the death of two children, one nine days old, and the other three weeks old, in both of whom well advanced tuberculous lesions were found.

We have considered more particularly secondary infections, where the tubercle bacillus has already gained entrance into the body. A short resume of the methods of entrance does not seem amiss. Food, especially milk and its products, is a recognized source of infection. Koch's original statement that the bovine bacillus is harmless for the child, and Behring's startling announcement that tuberculosis of later life has its origin in an intestinal infection acquired in early infancy and remaining latent for years, brought two of our earlier investigators into direct opposition. According to Koch the bovine type of tubercle bacillus differs from the human type and is only doubtfully communicable. One commission reported examining the tuberculous material of fifty-six men, women and children, and found only six of the bovine type. All were in children under seven years of age, and in five the infection was limited to the intestine and mesenteric glands.

Kitasato reported that the percentage of deaths from tuberculosis in Japan had the same relative relation to other causes as in other countries. Intestinal tuberculosis was equally prevalent, but cow's milk for feeding children was practically unknown.

Many commissions and investigators have reported, some on one side and some on the other. The conclusion that is now accepted is that the bacillus of tuberculosis, occurring in different species of animals, is a single species, the different varieties being various types of the same bacillus.

Those suffering from open forms of tuberculosis are a constant menace to those closely associated, especially young children, who are constantly putting things in their mouths. The expression coined during our recent army experience—"hand to mouth infection"—applies here.

Secondary tuberculous ulceration of the bowel shows an overwhelming preponderance in children, particularly during the earliest periods of life, after the first year, and reaches its maximum in the fourth year, after which there is a rapid diminution. This period includes the period of weaning, the period of food adjustment, accompanied as it often is with many catarrhal disturbances. Primary tuberculosis of the intestinal tract is relatively rare in childhood. Furst collected only one hundred and sixty cases from the literature, in comparison with the vast amount of tuberculosis in the first year of life.

Weleminsky claims this rarity of primary intestinal tuberculosis to be due to the fact that the tubercle bacilli penetrate the submaxillary and cervical lymph nodes and then into the lungs, the action of the normal intestinal juice destroying the bacilli. When large numbers of bacilli are swallowed and the patient's reactive condition is lowered from the infection, together with the lowered activity of the intestinal juices, secondary infections are prone to occur.

The typical ulcerative ileocecal tuberculosis is most often met with in young subjects from twenty to forty years of age. These individuals are suffering from pulmonary or other tuberculous troubles, but such conditions are insignificant, the body still retaining reactive ability, and advanced phthisis and ileocecal tuberculosis rarely occur.

Surgical interest rests in the cicatricial contraction which accompanies healing, and the stenosis formed, and the secondary infections of the tuberculous ulcerations. The contraction of the healing process distorts the lumen, the peritoneal coat becomes studded with tubercles, adjacent coils of intestine become adherent, thus increasing the obstructive symptoms, and the neighboring lymph glands enlarge and become caseous. The thickening of the peritoneal coat and adhesions to neighboring structures usually prevent perforations and, hence, septic peritonitis. It takes time for these sequelae to develop, for a tuberculous process is always of a chronic nature.

The recognizable symptoms being those induced by healing, a depleted system, from a severe tuberculosis anywhere in the body, would only allow a slow, indolent tuberculous ulceration to occur, with no reactive tendencies. Hence the disease is not recognizable as serious until after a stenosis or other sequelae occur.

In all tuberculous lesions the coexistence of other microorganisms materially alter the tuberculous process, very much the same as secondary infections alter tuberculous respiratory infections. The necrosis and active inflammatory changes caused by the mixed infection are responsible for the many sequelae and complications. The symptoms depend upon the stage and extent of the involvement. If secondary to a lung involvement, the general condition may overshadow the local ulceration. A patient, apparently in good health, may with an acute onset be operated on and extensive involvement of the parts found. The stage of ulceration must be reached before any symptoms are recognizable. These symptoms differ from those caused by increasing stenosis. The irritation of the mucous glands causes an increase of mucus so that it is quite constantly found in the stools. Irritation of the sensory nerves increases motor activity and causes irregular bowel contractions, diarrhea and spasmodic pain resulting. Pain is nearly always present and may be felt at any point of the abdomen. This is accounted for by the irritation of the mesenteric nerves, reflexly thru the spinal cord and the eighth, ninth, and tenth peripheral dorsal nerves. Local pain is dependent on the amount of active inflammatory trouble. Altho cases may occur without pain intermittent pain is often produced by the ingestion of food, particularly if a partial stricture is present. Again, where partial strictures are present, a vermicular action sensation is often spoken of, working up to the iliac region, and disappearing as gas escapes beyond, often with an audible sound. The diarrhea may be transitory; if prolonged, it is usually intractable. It may alternate with constipation. Emaciation occurs, particularly when the diarrhea is persistent. Palpation of the abdomen may show an area of exaggerated tenderness. From the ulcerated surface a small amount of blood streaking the motions may be seen, seldom in any quantity. Occasionally, however, the ulceration is so located with regard to a large blood vessel that very profuse hemorrhages may occur.

The tendency in tuberculous processes is for hyperplastic exudate and fibrous organization. This constricts and occludes the vessels. However, occasionally a mixed infection may change this. This also explains the fact that rarely does septic infection of the system occur thru the ulcerated tuberculous surface, for portal infection with an hepatic abscess is seldom met with. Usually in an adult hemorrhage from the bowel would indicate hemorrhoids, a malignant ulceration, portal congestion from an hepatic or heart disease, or possibly an embolism or thrombosis of the mesenteric vessels, or possibly a chronic duodenal or gastric ulcer. In children an intussusception would be strongly considered.

In the differential diagnosis of the intraabdominal complaints, we must consider that there is a great similarity of symptoms. There are no distinctive, but only suggestive symptoms of tuberculous ileocolitis. An important differential point is that there is usually no history of an acute attack of intraadominal trouble. Chronicity, with obstinate peristence of a diarrhea, with frequent strings of mucus streaked with blood, and a failure of remedial measures would lead one to strongly suspect tuberculous trouble.

The severity of the symptoms do not guage the extent of the tuberculous process, but rather the inflammatory symptoms, caused by the mixed infections. These may come on quite suddenly, masking the symptoms of the chronic process, run their course and clear up, the patient apparently recovering.

Ordinarily the recovery of the tubercle bacilli from the passages would assure the diagnosis. Local swellings, fixed or movable, are frequently discerned. A tuberculin reaction would indicate the presence of tuberculous trouble somewhere but, accompanied by increased local symptoms, the interpretation would be a probable tuberculous infection.

Mixed infection aggravates and accelerates certain symptoms. Ragged excavations are produced from the necrosis. The mixed infection changes the type of the trouble and we find a marked tendency to perforation and abscess formation. If neighboring muscles become involved, any movement of these muscles evokes pain, particularly movements of the thigh, where involvement of the psoas and iliacus has occurred. Again, extension to neighboring organs causes symptoms that particularly relate to the functions of the involved organ. If the bladder becomes adherent, painful micturition occurs. Lymph glands may become inflamed by the pyogenic cocci and break down, forming abscesses. Rupture would immediately set up a peritonitis. Perforation of the cecum may occur, with a resultant walled-off abscess or peritonitis. At times abscess cavities form among the coils of agglutinated intestines, leaving a free communication with the lumen of the bowel. The location of the fistula or abscess formed depends upon the location of the necrotic portion of the bowel. If posteriorly, the abscess may follow the deeper structures posterior to the peritoneum, and follow the deep vessels to the surface, the inguinal region. If anteriorly, the abscess may become adherent to the abdominal parietes and in neglected cases even discharge externally.

In all the cases of mixed infection complications we have marked tenderness and temperature, muscle rigidity, gastric symptoms, all the manifestations of an acute belly . Strictures form from a fibrous healing of a large tuberculous ulcer or from the hypertrophic form which narrows the lumen.

The hyperplastic type is an indication of a strong antituberculous reaction with the system. Hartman and Pilliet, in 1891, described this condition under the term tuberculous typhlitis. Custom regards all cases of the hyperplastic type as primary and, where lesions of the lungs are encountered, believes that the lung condition is secondary to the bowel condition. Crowder says the thickening is due to a hyperplasia of the fibrous and muscular tissues, and the inelastic firmness to an infiltration with tuberculous granulation tissue. One or all coats may be involved; the microscope often fails to reveal the usual tuberculous picture. Often a fibroadipose deposit is found, similar to that found around the kidneys in chronic inflammatory processes. This hyperplasia varies; it may be confined to the cecum, or extend up along the ascending and transverse colons, even to the sigmoid. This was well portrayed in the case reported in 1917 by Dr. Sharples, where three resections were necessary, the hyperplasia continuing after the first and second resections. This case also illustrates the difficulty in determining the extent of the disease.

This thickening narrows the lumen of the bowel, and leads to a partial obstruction, particles of feces producing an acute blocking. Dilatation and hypertrophy occur in the proximal segment of the bowel.

All types may be greatly modified by the healing and contraction of the fibrous tissue; peculiar puckerings occur, irregular polypoid growth, and vegetations may be seen projecting from the affected parts. This condition is considered pathognomonic by some.

The involvement of the appendix depends mostly upon its anatomic location, but cases are reported where the entire process seems to have been visited upon that organ. In children cases of tuberculous appendices are reported and appear either shriveled and hardened, or swollen and lardaceous. In these cases the serosa contains caseous nodules and the neighboring glands are caseous.

Obrastzow looks upon an early and rapid development of cecal stenosis as carcinoma; a late and slow development as characteristic of tuberculosis. In three operated cases of carcinoma of the cecum, the stenosis developed in the course of three to nine months from the beginning of the symptoms. In ten cases of tuberculosis of the cecum the stenotic phenomena were at no time very pronounced.

The prognosis of these cases is seemingly hopeless but, where conservative surgical principles are followed, surprisingly good results are obtained. The cases that are brought to a focus by a mixed infection are treated as if no tuberculous condition existed and relegate themselves to straight drainage principles, as no one would feel inclined to attempt a resection in the presence of an acute abdominal infection. An opening in the bowel would be closed, but a fistula commonly results; in fact one is rather disappointed when it does not. The plain ulcerative cases are more often treated medically, as the general tuberculous condition negatives any benefit from surgery. In the chronic type, where healing has occurred and a partial stenosis has resulted, surgical judgment is used, whether a lateral anastomosis or resection is done, but always a resection, if practical.

The hypertrophic and chronic ulcerative varieties are so often limited to the ileum and cecum that they offer themselves favorably to resection. Many cases have been opened and reported inoperable, but nature has succeeded in restoring the parts and at subsequent operations scarely any of the tuberculous process remained and the case has gone on for years, functionally well. Tuberculosis is not a malignant diseas and nature frequently overcomes it.

In the light of the foregoing remarks, I will briefly report a few cases that illustrate some of the outstanding features of this disease:

Case 1. A woman, thirty-five years of age, came in complaining of a protracted diarrhea, with mucus occasionally streaked with blood and an occasional digestive disturbance. While under general care she was seized with severe abdominal pains, incessant vomiting, all the symptoms of an acute intestinal obstruction. She was sent to the hospital and on her arrival, all the symptoms having subsided, she refused surgical interference. Later there was a return of the symptoms and she consented to an operation. On section an extensive tuberculous condition of the cecum and small bowel was found. Three strictures were found, one of which had contracted to the size of a lead pencil.

Owing to the wide-spread tuberculous process, resection was out of the question and a lateral anastamosis was made. The woman recovered and was fairly comfortable, living for approximately one year.

Case 2. A girl, about nineteen, was taken ill with an acute abdomen. Immediate operation revealed an extensive matting of the coils of the small intestine, which were covered with numerous tubercles. A large abscess was found in the cecal region. No attempt was made to prolong the operation. Rubber tube drainage was instituted and after about three weeks, with very profuse drainage, the girl recovered. General treatment, togethei with tuberculous therapy was instituted, the girl remaining under care for two years. Her recovery was so complete that she married and to date is symptomatically well.

Case 3. A young married woman developed a very severe pain in the right lower quadrant of the abdomen. There was a temperature with increased pulse rate and rigid rectus. Vaginal examination disclosed a small sensitive mass at the right vault.

Abdominal section revealed a ruptured pus tube with considerable soiling of the peritoneum. The cecum was indurated and thickened, covered with tubercles. The tube was removed, drainage instituted and after a stormy convalescence she recovered. During the last year and a half the young woman has apparently remained in perfect health.

Case 4. A young man, twenty-five years of age, was operated on about January, 1920, for a broken-down tuberculosis of the left testicle which was removed.

August 6, 1920, he was seized with very characteristic symptoms of an acute appendicitis. On August 9, he was operated on and an extensive tuberculous involvement of the cecum was found, with a ruptured tuberculous appendix. The appendix was removed and drainage instituted. There was a slow recovery with a persistent fistula. About this time the epididymis of the remaining testicle became involved and, when he presented himself after an absence of several months, there was a cold abscess, adherent to the scrotum, with a small fistula at the lower margin of the old abdominal incision. April 21, following his wishes, an epididymectomy was done, leaving the gonad. Perfect healing followed.

Unmistakable chest findings have developed, so that at present the case is taking its usual course.

Case 5. A child, about eight years old,, had for some time complained of belly-aches and soreness in the right lower quadrant. An examination showed a freely movable mass.

At operation a typical hypertrophic form of tuberculosis of the cecum and ileum was disclosed. The glands were large, hard and extended as far as could be reached. The appendix being inflamed was removed.

This case was one where a resection should have been done, but having been brought to us by another doctor and coming from an ignorant family, the family doctor advised against anything radical. Six months later the mother reports that the child is perfectly well and is in the best of health and growing fast. The ultimate outcome of the case will be awaited with considerable interest.

This last case I will report more in detail because from it many valuable points were learned.

Case 6. On July 10, 1920, a male, age sixteen, came to the Clinic. Family history showed that the mother died at the age of forty-four from tuberculosis of the bowels. His past history, outside of an occasional sore throat, brought out the fact that in 1918 he had cramps in his abdomen that bothered him for about two months, then a period of freedom, and later a period of about three months of cramps, with considerable borborygmus and some nausea.

His chief complaint was his right hip. From the clinical history it was learned that about April 26, 1920, he strained his right side lifting a motor. About June 12 he started to limp; this gradually became worse until about July 1, when he could hardly walk. At no time did he suffer from any but a moderate pain. About July 1 he developed a swelling in the right groin, which had not increased in size. Cardiovascular, neuromuscular, respiratory, gastrointestinal, and genitourinary symptoms were negative.

Examination showed a fairly well developed young man, pale, emaciated and with skin of a decided yellowish tinge. Slight pyorrhea, tonsils large with reddened pillars. There was a small swelling found in the right inguinal region, reddened and fluctuating. There was limited motion of the right thigh, which was held flexed on the abdomen. Weight June, 1919, 160 pounds; present 120. Systolic blood pressure 116; diastolic 59. Temperature 101.8. Urine, 1015, acid, with marked trace of albumin. Blood: Hemoglobin 63 per cent, reds 4,160,000, whites 12,456, differential, polys. 85, small 10, large 5.

Wassermann negative. X-ray revealed nothing pathologic in the right hip, sacroiliac or spine. Contrast enema was negative excepting for a limitation of motion of the cecum.

The abscess was opened and drained, and large quantities of a foul-smelling pus discharged. The abscess pointed posteriorly and externally to the deep vessels. Culture of the pus showed a colon infection. Rapid improvement occurred and patient returned home with a persistent fistula in the right inguinal region just below the centre of poupart's ligament.

On April 20, 1921, after a right rectus incision, the cecum was found adherent posteriorly. The lower posterior portion was hardened and indurated. The terminal ileum was hypertrophied to three times normal size. Ileocecal valve was the size of a lead pencil, the retrocecal gland was very much enlarged. Approximately one-third of the appendix was closely adherent to the lateral pelvic structures. There were no tubercles.

After the cecum was mobilized by cutting the outer sheath of the mesocecum, the mass was raised, disclosing a perforation at the junction of the base of the appendix with the cecum. The perforation was closely adherent to the posterior structures. The terminal ileum and the ascending colon were resected about the middle and lateral anastomosis made.

On examination of the specimen a rather typical tuberculous ulceration was found, involving the lower posterior portion of the cecum with contraction of the ileocecal valve. Microscopically the mucosa showed considerable round-cell infiltration. The glands in the mucosa were fairly straight and empty. The submucosa was markedly thickened, the number of lymph follicles were increased. There was a pronounced infiltration of round-cells with many epithelioid cells. There were tubercles with foreign body giant cells present. The muscularis was thickened. Round-cell infiltration was seen both about the blood vessels and between the muscle fibres. The serosea was thickened and in places it was edematous. Round-cell infiltration was present. The lymph gland showed hyperplasia but no tubercles or giant cells were found. In places the gland presented a somewhat lobulated appearance.

Four months later the patient was in perfect health.

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THE TUBERCULOSIS QUESTION FROM THE GENERAL PRACTITIONERS STANDPOINT.*

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There is hardly any other condition, with the possible exception of cancer, where the responsibility of the physician engaged in general practice is greater than in attempting to diagnose or treat tuberculosis. I shall try to bring forward a few facts relating to the general practitioner's duties and possibilities, what he should attempt to do and what he can be expected to do in regard to diagnosis and treatment; advice to be given patients suffering with tuberculosis. In this connection I shall discuss consumption or pulmonary tuberculosis only.

The first and very important thing to do when a patient seeks help and advice from us is to take a comprehensive history of the case. A properly taken history, past and present, will divulge many valuable facts helpful in making our diagnosis.

We all recognize the truth of the generally accepted opinion that practically all cases of pulmonary tuberculosis in the adult are a return to activity of a latent tuberculosis acquired during early childhood. Thus it will be of paramount importance to elicit from the history if the patient has in any way been exposed to tuberculosis during his earlier life. If so, for how long and to what extent. Obscure early febrile conditions should be looked into and particularly information given by the patient about havng had pneumonia, typhoid fever, protracted bronchitis with loss of weight and influenza should be further analyzed.

The patient should be questioned as to loss of weight, strength and appetite and feeling of lassitude, particularly of the afternoon type. If coughing, for how long and what kind and how much sputum in twenty-four hours. The presence of evening chills and night sweats should be elicited if existing and for how long. In addition any other condition, tending to lower the vitality and resistance power of the patient, should be elicited from the history, if existent, like previous diseases, unhygienic conditions, overwork, loss of sleep, insufficient nourishment and so on.

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*Read before the meeting of the Washington Trudean Society, Aberdeen, Wash., July 29, 1921.

The general practitioner should thoroly familiarize himself with the methods of physical examinaton of the chest, train himself to intelligently interpret the findings of inspection, palpation, percussion and auscultation. He should attempt to acquire the ability to judge a great deal from the patient's general looks and behavior, an art in which the physicians of the pre-laboratory and pre-x-ray days were past masters, and thus gain an experience well worth while in dealing with any diseases and particularly in diagnosing chronic conditions like tuberculosis.

Whenever possible, in addition to a complete history of the case and a thoro physical examination, a sputum examination and x-ray picture or fluoroscopic examination should be made to corroborate the other findings. But even without the aid of these corroborants the general practitioner should be able to make a fairly accurate diagnosis of the condition, perhaps even of the type of the lesion, the extent of the same, if it is active, quiescent or arrested.

And here is where the main duty of the general practitioner and his opportunity to render the greatest service lies. He should by all the means at his disposal try to make an early diagnosis and thus give the patient the invaluable opportunity and chance to have something worth while done toward his improvement or recovery.

The general practitioner should explain the condition to the patient or family, inform him of the absolute necessity of seeking immediate and proper treatment. He should acquaint the patient with the fact that several months at lest would be required for immediate improvement, perhaps two or more years to arrest the process in his lungs and some more years before a complete cure could be expected.

Whenever possible sanatorium treatment either in a private or county institution should be recommended as being without any doubt by far the best form of treatment, and only when such treatment is absolutely beyond the means or opportunity of the patient should the general practitioner attempt to treat the patient at home.

The best he can do under such circumstances will be to institute proper sleeping and resting accommodations for the patient, providing an abundance of fresh air and give advice as to general care and proper nourishment. He should instruct the patient and family as to hygienic regulations in the home, disposal of sputum and so on, regulate the amount of rest and exercise and emphasize the fact that absolute rest in bed will be necessary as long as the process is progressive and active, as indicated by the weight, pulse and temperature charts.

The patients treated in sanatoria are usually discharged at least temporarily, when the activity of the process has been checked and are returning to their homes to be placed under further observation and to receive treatment toward immunization, as the case may be, and it will then be the general practitioner who usually has to do this work, thus helping and assisting the specialist in finally obtaining a cure.

As can be seen from the above remarks, constituting only a fragmentary sketch, there are a great many things the general practitioner is expected to do and should do in helping to combat tuberculosis. I wish again to emphasize the following most important requirements:

1. The general practitioner should try to make as early and as accurate a diagnosis as possible.
2. Whenever possible advise sanatorium treatment.
3. Assist the specialist in instituting after treatment and keep the patients under close observation after their discharge from the sanatorium.

MIGRAINE. ITS CAUSE AND TREATMENT.*

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If called upon to define this disease according to the most recent view of its nature that has come to the writer's notice, the statement would read thus: It is an interstitial neuritis, involving certain random superficial nerves of the head, neck or face, at their points of emergence from deeper to more superficial positions, at which points there is also a degree of cellulitis and myositis.

This theory, advanced by Didsbury and Nordstrom, is so recent that there has been time on the part of the profession to either confirm or disprove it. The writer has not seen the original papers of these clinicians, but an abstract which may be regarded as reliable.

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*Read before Salt Lake County Medical Society. Salt Lake City, Utah, Jan. 24, 1921.

It is claimed that the affected areas can always be found by careful search, manifesting themselves as spots tender to pressure, and that they can be removed by diligent massage, and the disease thus cured. Didsbury disclaims all toxic, general or endocrinal theories, and insists on the disease being a purely local and superficial one. According to this theory all the train of sever periodic disturbances, with which we have been so long familiar, will have to be regarded as simply symptomatic.

The simplicity of this pathology and therapy is certainly luring and, if it can be maintained, should be a very distinct advance. Without fully knowing how it is defended, to the writer there still remains much to be explained before it can be at all fully credited.

Why should such an essentially local and continuous condition be the substratum for the periodic violent outbursts, which seem so little to relate themselves to this theory. Of course, we have the hypotheses of summation, of reflexes and of crises, with which we may speculate. But neuritis in other situations, even when accompanied as it so frequently is by cellulitis and myositis, does not seem to act similarly.

The location of the lesions, with their possible influence on the vagus and sympathetic, must however not be disregarded. It may be safer to regard these neuritic areas in the head, neck and face as only an addition to the vast number of peripheral and visceral sources of irritation which have so long been known to have an etiologic relation to migraine attacks, and hence to proceed to a second definition, which would certainly have been the one adopted less than six months ago, and which may thus be formulated.

A general reflex, vascular disturbance, implying an unbalance of sympathicotonic and vagotonic action in the autonomic nervous system, culminating in more or less violent, periodical attacks of sensory and vasomotor character, in which headache and visual disorders are prominent and fairly constant symptoms.

ETIOLOGY.

For the immediate beginning of the chain of events leading to a seizure, it is plain that we must search at the biochemic level. In the endocrine system, where the hormone is the unit, we are impelled to look for the first steps in the incoordination, in the unbalance which later becomes so pronounced. But with all the voluminous literature on this subject, with all the patient research that has been made, we cannot as yet speak at all definitely, so as to indict anyone of the internal secretions specifically. Pituitary headaches are recognized, but they can not be classed with the migraines. Either associated cerebral conditions, where tumors or other intracranial morbid processes involve the pituitary, account for the headaches, or, where pituitary glands seems directly accountable, the syndrome differs from the migrainous. It is known that the thyroid has much to do with sympathetic function. Also that, where there is hyperthyroidism with headache, minute doses of the gland tend to relieve the symptom. Where there are menstrual disturbances, the gonads may be thought of as possibly figuring. The whole field is still so vague, that neither in the etiology nor in the therapy of this disease, can we do more than grope, when we attempt explanations or relief.

Heredity. That this factor plays a part is hardly to be doubted. Not that there is any great tendency to transmit the disease directly, but the neuropathic constitution, which underlies it, is undoubtedly very constantly passed on from antecedents to descendants, if not antagonized by the mendelian law. Thus we find that, in the etiology of the neruoses, neuropsychoses, and psychoses, this element very often figures. We do not acquire from our parents epilepsy, hysteria, migraine, insanity and so on, as much as we acquire a type of make-up, on which one or another of these disorders can easily fasten itself.

Age. The period of puberty, or still more, early manhood or womanhood is the favorite age for its first appearance. It is very prone to spontaneously disappear in women at the climacteric and in men about the same age. This is rather an important factor in diagnosis and prognosis. One should be very cautious in diagnosing migraine before 16 or 17, or after 50.

Incidence. While it can be admitted to be a very common disease, the sweeping statement made by some authors that no person who has reached middle life will have altogether escaped it, does not seem to me to be warranted. We should endeavor to connect this name with something fairly distinctive, and regard recurrence over a considerable period of time as one of its essential characteristics. While we must admit to this category a certain number of what may ultimately prove symptomatic headaches, there is still a tremendous contingent which can make no just claim to be classified here. The term migranoid for some of the equivocal cases seems to be warranted. Females, even with careful discrimination as above indicated, are probably somewhat oftener affected. I am not prepared to speak of any special incidence of race or color.

Occupation Social Classes. If we carefully eliminate cases which are symptomatic from those more distinctly of an essential character, there can be but little said under this heading. The loss of rest, the excesses in various directions of the socially or professionally ambitious, the worries of certain responsible positions, and the disappointments, anxieties, griefs and failures in life generally, should of course be evaluated in the etiology. Their role in begetting nervous instability is certainly not to be ignored. Indoor, sedentary and plodding workers suffer, but not especially often as compared with those who lead typically well-regulated lives, with all proper observance of hygiene.

It is quite often seen that these subjects have attacks on Sunday, on holidays or on other occasions, when there had been special anticipations of rest or pleasure or accomplishment. On the other hand, such occasions sometimes seem to be immediately followed by an outbreak, or break up a threatened seizure, which in some cases is thus only delayed, to return on the resumption of the regular routine. The role of character, temperament, disposition and mental attitude is thus seen. After all, what does it mean that is more probable than endocrinal disturbance.

There are instances in which migraine exchanges with epilepsy. A patient who has been having either petit mal or grand mal, will cease with epilepsy and have migraine attacks; the reverse also may occur. This occurence is rare, having only once been observed in my own experience.

Lumbar puncture has been credited with producing migraine. My observations have been that, while there are many instances of severe headache following lumbar puncture, they can hardly be admitted to this classification.

There are instances in which a series of attacks simulating migraine very closely, and extending over a considerable period, precede the characteristic symptoms of tabes or paresis. Their nature is thus cleared up, as never having been true migraine.

The theory of autointoxication as the basis for the disease, with a corresponding overemphasis of the importance of the appearance of indican in the urine, is not at all fully substantiated. It must be admitted, however, that concomitant gastric disorders of a periodic type are probably more often associated than any other form of visceral disturbance. The old name of bilious headache and sick headache, as well as the observances of the recent time, would seem to warrant this statement.

In inciting outbreaks monotonous sense impressions of vision, smell, hearing,; emotional excitement and traumatism may be implicated, but their role in producing the disease is much more uncertain. The same may be said of alcohol, tobacco, certain drugs which increase blood pressure, all of which aggravate exciting attacks, or may possibly precipitate a seizure.

SYMPTOMATOLOGY.

This is such a vast field that the limits of my paper will forbid any full consideration.

The first symptoms of an attack, a vague frontal, parietal or occipital pain on one side, with a feeling of depression and disinclination to activity, are in most typical attacks present in the morning on awakening. A little later the characteristic visual disturbances of scotomata, blurring of vision developing into considerable blindness, and decided headache, probably extending to the other side, appear. The subject, however, goes to his work, and manages in many of his attacks to keep up during the day, but is glad to slink away, when the day is done, to his bed without taking the evening meal. In a darkened quiet room, and a comfortable bed, he usually soon falls asleep, to awaken free from the symptoms next morning, and then goes on for days or weeks or even months, when the same role again is played.

There are in some cases many abortive attacks, some without headache or if present of slight degree, some without visual disturbance or some without either. There is, indeed, great variation from the type as above described. But to say that the daily attacks of headache which occur in many cases over long periods of time are a continuation of the migraine attack, or are daily recurrences, is hardly a warranted statement. They are undoubtedly generally symptoms of the underlying or complicating neurasthenia or hysteria which quite frequently exists.

DIAGNOSIS.

It is well to investigate with the utmost care and diligence any case which proves itself finally as an essential migraine, as well as those which simulate it quite closely, and by this method are found to be simply symptomatic. The differentiation in many cases is perfectly easy, while in some a great deal of skill is required .

We must exclude intracranial tumors and meningitides, not forgetting that both increase and decrease of intracerebral pressure have been noted as factors present during the attack. An attack of lethargic encephalitis may have headache or migrainous attacks as a sequel. Some authors claim that migraine subjects are specially liable to this disease. Renal and cardiorenal diseases, remembering uremia and acidosis, must be considered. Diseases of the gastrointestional tract and of the liver must be looked for. In essential cases there is almost sure to be at times gastric disturbance during attacks. The vomiting which sometimes gives relief is in some cases due to the secretion of large quantities of watery fluid as the result of vasomotor disturbances. So, too, there may be polyuria produced in similar way. Pelvic disease in women or functional irregularities must receive due attention. In a considerable proportion of cases the attacks have a definite relation in time to the menstrual period. There are rather frequent examples of interruptions of the attacks during pregnancy and lactation, with subsequent resumption.

Malaria, syphilis, gout, anemia and plumbism may all enter either into the problems of diagnosis or therapy. Occular causes (especially eye strain), ear and labyrinth diseases, sinus diseases, all need careful consideration. Habits as to alcohol, tobacco, tea and coffee must be ascertained. The methods and amount of work, the worries and anxieties, the attention to sleep and meals, the happiness or unhappiness of the subject may need looking into. The whole class of neuroses, psychoneuroses and psychoses may have a bearing. Hysteria and neurasthenia especially need attention. There may be certain protein reactions to figure in the problem.

Proceeding in this way, we will still have left a class which will deserve to be classed as essential migraine, even tho in these cases there may be found something to treat that can be regarded as the starting point of reflex irritation. This is especially applicable to a certain number of cases, in which the gastrointestional tract or the female sexual organs are implicated, as well as those in which faulty hygiene or habits figure.

THERAPY.

We have now but little left for treatment except the attacks. I still think that cannabis indica, given over an extended period, is quite often of value. A judicious and prolonged course of arsenic is useful in selected cases. Belladonna or atropia can sometimes be used with good results, either alone or in combination with small doses of iodides.

Glandular therapy is still very uncertain, but as we get more light may offer something specific. Careful pluriglandular therapy may be sometimes warranted. So there may be cases where ovarian extracts are considered indicated. Of thyroid medication I spoke in a previous section.

For the attack the simplest methods that will answer are probably the best. Quite a number experience relief from a very tight bandage to the forehead. An apparatus called a migrinator acts on this principle. Very hot compresses to the forehead and upper part of the face often prove useful, or a hot water bag at the nape of the neck. Frequent bathing of the forehead and temples with some volatile spirituous lotion, to which aconite or belladonna can be added, often does well.

The complete rest which comes with sleep, into which a large number of patients fall easily, if all the conditions favor, is nearly always effective. A hot bath may be a useful prelude to this desirable rest. When we must resort to drugs, the nitrites in the early stage, where there is pallor, chilliness, small pulse and contracted temporal arteries, best meet the indications. At a latter stage, when the sympathicotonic symptoms are in full force, these would be harmful. The coal-tar analgesics, antipyrin, acetanilid, phenacetin, aspirin come into play. Caffeine may be used with them. A cup of strong coffee may act similarly, and is especially useful in the morning. The bromides may be useful, but more often fail when given alone. I feel fairly convinced that small doses of ergot combined with the bromides enhance their salutary effect.

We may be obliged to resort to morphia. It goes without saying that in a condition of such frequent occurrence we should be cautious with this drug. But we are as a rule possibly too hesitating to give this effective palliation. I shall certainly in the future search for the painful points which Didsbury claims always exist, and treat them as he has suggested.

NORTHWEST MEDICINE
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Devoted to the Interests of the Medical Profession of the Pacific Northwest

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EDITORIAL

PACIFIC NORTHWEST MEDICAL ASSOCIATION.

The tristate meeting of Oregon, Washington and Idaho, held in Portland last July, was the most successful meeting in the history of this organization. The splendid program furnished by destinguished Eastern men no doubt was responsible for the unprecedented attendance. Prompted by the success of this meeting, it was the sentiment of many present that similar meetings in the future should be held.

There is a prevalent feeling that the programs of the various state association should be a medium for the presentation of scientific papers and personal research work of their members. While the stimulus obtained from a series of lectures or demonstrations given by leading members of the profession is desirable, they could better be given under different auspicies. With this in view a committee was appointed from the various states and provinces represented to perfect the plans of an organization to be known as the Pacific Northwest Medical Association. Its boundaries are to include the states of Oregon, Washington, Idaho, Utah, Montana and the Province of British Columbia and other provinces, if they wish to participate. The purposes of this organization shall be to unite the profession of the Pacific Northwest and to bring to the physicians and surgeons of this section the latest Eastern thought in medical progress. This association will not in any way compete with the various state medical associations or existing organized medical bodies, but will stimulate their work by bearing the same relationship to them that an Academy of Medicine in a city bears to the city or county medical society.

The program shall consist largely or entirely of papers of Eastern men. It shall be optional with the profession in the city in which the meetings will be held, whether or not clinical demonstrations shall be given. In any event such clinics shall not conflict with the definite lecture program. Papers by members of the profession in this district may constitute a part of the program, when considered desirable. The meeting shall last two days, including morning, afternoon and evening sessions. The association will be financed by a five dollar fee, paid by each one attending the five dollar fee, paid by each one attending the annual session. Registration cards will be forwarded in advance and any physician living in the states or provinces included, who is a member of his local society, is privileged to attend. Spokane has been selected for the first meeting of the association, the time of which will be announced in the near future.

THE WASHINGTON MEETING AT SEATTLE.

The annual meeting of the Washington State Medical Association held last month at Seattle was of special interest for several reasons. It was peculiarly a gathering of the physicians of the state, since there was a very small attendance of physicians outside its borders. The registration was the smallest for a number of years. These conditions were anticipated in view of the unusual attendance at the recent meeting in Portland which brought together a very large attendance from Washington. A program of papers was furnished exclusively by members of the association, thus aiding in making this so markedly a meeting of the association itself.

One of the notable features of the program was the devotion of all of the first afternoon to reports from committees relating to public health and policy. To a certain extent this was the most important session of the meeting, because the matters considered were of vital interest to the whole medical profession of the Northwest. These problems belong just as much to the physicians of other states of this section as to those of Washington. Dr. Quevli, of Tacoma, gave a sketch of progress in the tuberculosis warfare which is a matter affecting every citizen of the state as much as the physicians. It was interesting to note that there are six tuberculous sanatoria, containing a total of 607 beds. There are antituberculosis leagues in twenty-nine counties. This shows decided progress in the fight against tuberculosis, but is only a beginning of what must develop in the future. Dr. J. S. Thomas, of Seattle, discussed veneral prophylaxis, described the menace of venereal disease thruout the country as well as in the Northwest. Very little progress in prophylaxis was shown to exist in the state of Washington, there being probably as little done in this line as in any other state. Dr. E. C. Wheeler, of Tacoma, in discussing conservation of vision, did not present a very favorable situation in this state. While many states have stringent laws for the protection of eyesight both in the newborn and in factory workers, only moderate progress in these lines have thus far been made in Washington. This is a subject which should demand the interest and action of all of our Pacific Coast states. This matter will be presented at greater length at a future date. Dr. G. W. Swift, of Seattle, has taken an active interest in hospital standardization. He was largely responsible for the plan of work along this line which was adopted by the King County Society a year ago and which has been put into effect in many hospitals of the state. The committee on standardization has been active in different parts of the state and it is anticipated that most of the hospitals within the borders will have put into effect the rules of standardization in the near future. Dr. Paul Turner, State Commissioner of Health, outlined the proposed work for that body during the coming year which, if carried out according to these plans, will put Washington among the foremost states in matters pertaining to public health. The Public Health League of Washington and its functions during the past year were described by the Executive Secretary, J. W. Gilbert. He presented in a vivid manner how little attention was paid to the medical profession and its interests at the last session of the legislature as compared with that given the cults of various kinds, with their large and influential lobbies. The league's success in putting thru the referendum against Senate Bill 180 was the outstanding feature of its work for the year. The manner in which this was conceived and successfully accomplished was described in a very interesting manner. The secretary discussed the physician's responsibility in matters pertaining to matters of public health and the education of the public in such matters, emphasizing the fact that, if each is unwilling to assume his share of responsibility in helping to accomplish the work laid out by the league, its efforts will be futile and in reality superfluous. All of the subjects presented and discussed during this afternoon session were worthy of the careful consideration of every physician in the Pacific Northwest.

THE UTAH ASSOCIATION MEETING.

The twenty-seventh annual meeting of the Utah State Medical Association, held at Salt Lake City last month, was the most successful and the best attended in its history, there being more than one hundred and fifty physicians present. A number of non-members were invited from adjoining states. These gentlemen were in good standing in their respective state associations. There were eleven invited guests, representing some of the principal centers of learning in this country. They were men of high professional training and assisted in presenting some intensive postgraduate work.

The annual banquet was full of good fellowship, wit and humor and many of the toasts were of scientific interest. One of the speakers very eloquently dealt with some of the shortcomings of the profession, and spoke at length on the necessity of education of the laity. There was a large attendance at this annual dinner.

A NOTEWORTHY COURSE OF LECTURES.

The Portland Academy of Medicine is planning a course of lectures for the coming year that will be of great value to the profession of the Northwest. This is a form of service that calls for enthusiastic commendation. The program is the best that has ever been presented. As arranged date it is as follows:

Oct. 13. Significance of Internal Ear Studies in General Clinical Practice. Dr. Isaac H. Jones, Los Angeles.

Nov. 10. Further Consideration of the Causes and the Diagnosis of Various Forms of Coma. Dr. Blair Holcomb, Portland.

Food Tolerance Determined by Blood-sugar Reaction to a Normal Meal. Dr. I. C. Brille, Portland.

Dec. 8. Clinical Aspects of the So-Called Syndrome of Acidosis as it Occurs in Children. Dr. Langley, Porter, San Francisco.

Jan. 12 and 13. Annual lecture. Author and subject to be announced later.

Feb. 9. Chas. J. Mayo, Rochester, Minn. Subject to be announced later.

March 9. Matson and Bisaillon lecture on tuberculosis. Speaker and subject to be announced later.

April 13. The Use of Radium in Gynecology. Dr. J. P. Graves, Boston.

The medical profession of the Pacific Northwest is invited to attend any of the lectures of the Academy of Medicine. Detailed announcements will be made each month.

MEDICAL NOTES

OREGON

Tribute to Dr. Mackenzie. An admirer of Dr. Mackenzie recently sent the following verse from England with some heather for his grave.

"What though the still god Death hath spread his sable wings
And hidden from our eyes all that the world once knew,
We know that from his transient victory there springs,
Even from death's cold arms, the great eternal You.
"He is here now," the angel at the tomb
Cries as they seek the buried Christ, "but gone before."
And as the golden day springs joyous from the womb
Of night, we know that you have entered through the door
Into a larger Place.
Here is some heather bell—
Gathered in distant Scotland, England, Wales, to lay
Upon your grave—whose roots still hold the mist crowned fell,
Awaiting Springtime's voice, the dawning of the Day."

England, July, 1921. J. R. M.

To Build New Hospital. Work is about to start on the armory building at Lebanon to be erected for the newly organized hospital unit. It will be a frame structure sixty by one hundred feet.

Portland Doctor Honored. Dr. Gustave Barr, who formerly practiced in Portland, was recently elected President of the American Medical Association, of Vienna, which comprises all American physicians studying in that city.

Injured in Auto Wreck. Dr. J. P. Graham, of Portland, was seriously injured last month while driving on the Pacific highway, when the care in which he was riding plunged off the road. He sustained a fracture of the skull with cuts and bruises and internal injuries.

Reelected Health Officer. Dr. G. E. Riggs, of Albany, has been reelected health officer for the public schools. He has held this position for the past two years.

Dr. O. K. Wolf, formerly of Castle Rock, Wash., health officer for Cowlitz county, has located for practice at Woodburn.

Dr. M. Irvine, who has practiced for thirteen years at North Powder, has located at La Grande.

Dr. L. I. Dillard, of Canby, has located for practice at Roseburg.

Dr. John Fuller, of Scotts Mills, has moved to Oregon City, where he will continue practice.

Dr. W. J. Miller, formerly of Condon, has moved to Portland for practice.

WASHINGTON

New Nurses' Home. A nurses' home is to be built in connection with the Sacred Heart Hospital in Spokane which will cost $240,000. It will provide a home with every convenience for 125 nurses.

Sanatorium Burns. Last month the Siloam sanitarium, at Soap Lake, was destroyed by fire. It was a three story frame structure with one hundred forty rooms. Eight patient were in the establishment but escaped in safety. It was erected sixteen years ago and has been operated as a sanitarium by various managements.

Hospital Remodeled. Mt. Carmel hospital, at Colville, has been remodeled to make it a modern institution. It is under the care of a graduate nurse.

New Hospital to be Built. A hospital is to be constructed at Okonogan of cottage style, a frame structure. It will be twenty-four by forty-six feet with three private rooms and a ward.

Fire in Hospital. The Deaconess Hospital, at Wenatchee, was damaged by fire September 2nd to the extent of about $2,000. Twelve patients were in the hospital who were removed without injury.

Superintendent of Veterans' Home. Dr. H. M. Francisco has been appointed superintendent of the Washington Veterans' Home, at Retsil. He was formerly connected with the Central State Hospital at Nashville, Tenn. This is the first time a physician has been in charge of this institution.

Red Cross Service in Europe. Dr. John B. Manning, of Seattle, has accepted a year's engagement with the Red Cross for service in caring for neglected and helpless children in Europe. The resources of this organization for European relief are to be devoted largely to the benefit of children during the coming year. Dr. Manning's headquarters for supervising this work will be in Paris and Vienna. These relief efforts are to be extended to the children of Central Europe.

Appointed Health Officer. Dr. F. W. McKnight, of Cle Elum, was last month appointed health officer by the city council, in place of Dr. Stafford resigned.

New Health Officer Appointed. Dr. J. P. Kane, of Tacoma, has been appointed health officer in place of Dr. P. R. Brenton, resigned.

Appointed to U. S. Public Health Service. Dr. W. H. Morse, who has recently served in Seattle with the Bureau of War Risk Insurance, has been placed in charge of the Spokane office of the U. S. Public Health Service in place of Dr. F. B. Nather who has been transferred elsewhere.

New Physician in Charge. Dr. H. S. Judd, who has recently been connected with U. S. Public Health Service in Seattle, was last month assigned to service at Cushman Hospital, Tacoma, to succeed Maj. William Elder, resigned.

New Detention Hospital. The city hall annex, of Tacoma, is to be remodeled into a detention hospital and clinic. There will be room for about thirty patients in the new hospital.

Washington Chapter of American College of Surgeons will meet next year at Tacoma. Dr. J. B. McNerthney, of Tacoma, is chairman of the executive committee and Dr. H. F. Whitacre executive secretary.

Snohomish County Medical Society held a meeting Sept. 5. Papers were read by Drs. H. K. Stockwell and C. H. Soll, of Monroe.

Surgery Under Difficulties. Dr. J. B. Couche, formerly of Entiat, recently made a visit to England. While in mid-ocean a wireless came from a vessel six hundred miles distant, asking for the services of a physician. His vessel speede up to the location of the other ship, where he amputated the arm of a sailor who had been severely injured.

Elected to School Board. Dr. C. F. Eikenbary, of Spokane, was recently elected to the school board to fill the vacancy of a resigned member.

Dr. Philipp Schonwold, graduate of University of Vienna, Austria, has located for practice in Seattle.

Dr. Miles Hopkins, recently from Great Falls, Mont., has located for practice at Prescott.

Dr. O. V. Linhardt, formerly of Prescott, has moved to Walla Walla.

Dr. A. L. Scace, of Centralia, was injured when his automobile collided with another car in Olympia. He sustained fractured ribs and other injuries.

Dr. W. H. Warner, of White Salmon, was severely injured last month when his auto went over a thirty foot embankment. He suffered broken ribs, injury to his lung and many bruises.

Dr. F. A. McMurray, recently of Chicago, has located for practice at Burton.

Dr. L. R. Redner, formerly of Dayton, has located for practice at Wenatchee.

Medical Wedding. Dr. J. R. Turner, of Tacoma, was married to Miss Clauddeana Toulon of that city on Sept. 1.

Dr. R. H. Kuhns, of Seattle, was married Sept. 14, to Miss Margaret Sloss of Ross Valley, Calif.

IDAHO

North Idaho District Medical Society held a meeting at Moscow last month which was largely attended by doctors from all parts of the district. The following papers were read. Hay Fever and Treatment, M. J. Biestel, of Pullman, Wash.; Classification of Nervous Systems and Ductless Glands, with Reference to the Study of Endocrinology, W. F. McMahon, Lewiston; Tonsil Removal with Reference to Changes in the Singing and Speaking Voice, J. W. Stevenson, Moscow; The Treatment of Peptic Ulcer, H. W. Marshall of Spokane; Difficulties which Arise During Reduction of Fractures with Reference to Their Correction, C. O. Armstrong, of Moscow; Teeth and Tonsils as a Source of Disease, F. St. Sure, Colfax, Wash.

Twin Falls County Medical Society had a meeting at Twin Falls, Sept. 20. Papers were read by Dr. Frank Sprague, of Pocatello, and Dr. Joseph Segal, of Twin Falls.

Canyon County Medical Society held a meeting at Nampa, Sept. 9. A schedule for the winter's meetings was discussed.

Bacteriologist Resigned. Dr. G. B. Randall, of Boise, state bacteriologist, resigned his office last month. He was succeeded by Paul A. Mader.

Commissioned in Navy. Dr. James O'Conner, who has practiced for sometime at Pocatello, has received a lieutenant's commission in the U. S. Navy.

Reappointed to Medical Board. Dr. G. F. Ashley, of Montpellier, has been reappointed member of the State Medical Board. This is the doctor's fourth appointment to that position.

Dr. P. A. Lillie, who has recently practiced in Northern Idaho, as a railroad physician has recently settled in Arco.

Medical Wedding. Dr. Boeck, of Boise, was married to Miss Minnie L. Goffy of that city on Sept. 10.

OBITUARIES.

Dr. B. H. McCallon, of Dallas, Ore., died Sept. 2 from disease of the heart. He was born in Meegs County, Tenn., 72 years ago. He studied medicine at Nashville and later moved to Dallas, where he practiced for more than 30 years. He was health officer of Polk County at the time of his death. He took an active interest in the politics and served in the House of the state legislature in 1905.

Dr. A. Tilzer, of Portland, Ore., died Sept 15, of an attack of acute nephritis, folllowing a chronic course of this disease. He was 56 years of age and a resident of Portland for 35 years. He was born in Russia and had his early schooling at the Gymnasium in St. Petersburg. He studied at Harvard University, receiving a batchelor's degree. Later he studied medicine at the University of Oregon, from which he graduated.

Dr. Marriette Marsh-Armstrong, of Seattle, died September 25, of disease of the heart. She came to Seattle thirty-one years ago. She graduated from medical department of the University of Oregon in 1897. After a postgraduate course in New York she settled for practice in Seattle. Beside being a well known physician of the city she was prominent in women's clubs and other activities of women.

REPORTS OF SOCIETY MEETINGS

KING COUNTY MEDICAL SOCIETY.

Pres., H. G. Lazelle, M. D.; Secty , B. T. King, M. D.

The postponed meeting of Sept. 5 was held Sept. 12 in Masonic Club Rooms, Seattle, vice-president Dr. Plummer being in the chair. The minutes of the previous meeting were read and approved.

PAPERS

Etiology of Diseases of the Gall-Bladder. By Dr. O. H. Christoffersen. He mentioned infectious origin, age of frequency, mechanical influences, etc., organisms, streptococcus most prevalent. He spoke of Rosenow's experiments in hematogenous infections and experiments supporting this route. A few cases are supposed to be of lymphatic origin.

Dr. Hagyard called attention to the frequency of other infective foci in cholecystitis, as tonsils, teeth, sinuses, etc.

Dr. Warhanik spoke of increased cholesterin as predisposing to the formatoin of stone and suggested a diet to reduce it. He mentioned the magnesium sulphate method of emptying the gall-bladder. He recommended alkalies for the accompanying hyperchlorhydria.

Dr. Seagrave objected to the use of chloroform to relieve the pain of gall-stone colic and mentioned hexamethylene in large doses for cholecystitis. Dr. Lippincott spoke of catarrhal jaundice and jaundice in the new born. Dr. Winslow discussed chronic cholecystitits and its diagnosis.

Surgical Aspect of Gall-Bladder. By Dr. O. F. Lamson. He described technic in removal of gall-bladder. He usually works from below up. Cited Judd's observations on the one enlarged gland at the cystic duct junction. Stress laid on clinical history as an important item on surgical aid needed. Care in preparing cases for operation, especially in jaundiced cases, transfusion—two step operation, etc.

Dr. W. C. Woodward discussed difficulty of diagnosis and importance of history, cholecystectomy vs, cholecystotomy and other local pathology associated with gall-bladder disease.

Dr. C. W. Sharples discussed cancer of gall-bladder and its relation to chronic irritation, methods of control of bleeding in acute infection, carefully peritonealizing raw surfaces, use of rubber glove to cover surfaces and protect neighboring viscera.

Pathologic Aspect of the Gall-bladder. By Dr. D. H. Nickson. He discussed embryologic development and various anomalies. Described gross appearance of inflammatory gall bladder. Discussed tumors of gall-bladder, benign and malignant. Quoted percentage of infections found in various diseases of gall-bladder and percentage of organisms found in various large clinics. In majority of gall-bladder diseases there is also disease of the liver.

Dr. O. J. West discussed selective action of various strains of streptococci and hematogenous route of travel. Thinks we are misled in ascending infections as in those of kidney as described by old writers. Dr. Canfield discussed some phases of diagnosis.

Pneumo-pericardium. By Dr. H. J. Davidson. This case which walked into his office. Remarkable clearness of heart under screen. Had also pneumothorax.

The second regular meeting of the society was held Sept. 19. Minutes of previous meeting were read and approved.

PAPERS

Treatment of Maxillary Sinusitis. By Dr. A. T. Wanamaker. He stated tuberculosis of sinus is very rare. Antrum most frequently infected of all sinuses. The operation is to introduce trocar under inferior turbinate, then irrigate daily. He gave symptoms complained, length of convalescence, type of anesthesia.

Paper was discussed by Drs. Chase, Perry, Klemptner, Hunt, Harter, Samuels, Cunningham, Dawson.

Some Practical Considerations of the Accessory Nasal Sinuses. By Dr. J. H. Harter. He discouraged forcible blowing of the nose. Diagnosis of ethmosphenoidal sinus by x-ray is difficult. He discussed hyperplastic rhinitis, its causes and treatment. Polypi are only a symptom of hyperplastic rhinitis. He spoke of value of Wassermann in all suppurative sinus cases.

Paper was discussed by Drs. Samuels, Cunningham, and Wood.

The Management of Strabismus. By Dr. W. K. Seelye. He urged early attention in squint as observed in children. Treatment is to prevent loss of vision in squinting eye. (1) glasses, (2) operation.

NEW AND NON-OFFICIAL REMEDIES ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY DURING SEPTEMBER.'

During September the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and non-official Remedies:

The Abbott Laboratories:
  Procaine-Adrenalin Hypodermic Tablets No. 2.
Dry Milk Co.:
  Protolac.
Hynson, Westcott and Dunning:
  Tablets of Benzyl Succinate—H. W. and D.
Intra Products Co.:
  Ampules Ven Sterile Solution Mercury Oxycyanide 0.008 Gm.
  Ampules Ven Sterile Solution Mercury Oxycyanide 0.016 Gm.
Lederle Antitoxin Laboratories:
  Acne Combined Vaccine.
Mead Johnson & Co.:
  Casec.

N. Y. Intravenous Laboratory:
  Loeser's Intravenous Solution of Mercury Oxycyanide.
Seydel Mfg. Co.:
  Benzyl Succinate-Seydel.
Nonproprietary Articles:
  Benzyl Succinate.
  Calcium Caseinate.

NEW AND NONOFFICIAL REMEDIES.

Beebe Protein Milk.—Edweiss Milch of Finkelstein.—A modified milk preparation having a relatively low content of carbohydrate and fat and a relatively high protein content. Each 100 Gm. contains approximately solids 10.2 Gm., carbohydrate 2.5 Gm., protein (casein) .3 Gm., fat 1.6 Gm., and ash 0.8 Gm. The acidity is stated on each package. The high protein content of protein milk is claimed to act as a preventive of fermentation and to serve as a medium in which a change in the intestinal flora takes place. Protein milk is said to be especially indicated in gastrointestinal disorders of infants, accompanied by fermentation and diarrhea. Beebe Laboratories, Inc., St. Paul, Minn.

Beebe Modified Buttermilk.—Buttermilk with Flour.—Buttermilk modified formula of Langstein and Meyer.—Buttermilk containing flour partially dextrinized by heat.—Each 100 Gm. contains approximately: total solids 9.07 Gm., carbohydrate 4.7 Gm., protein 3.3 Gm., fat 0.6 Gm., and ash 1.2 Gm. The acidity is stated on each package. Beebe Modified Buttermilk is offered as a means of combating intestinal fermentation by modifying the intestinal flora. Since it contains several forms of carbohydrates which have different periods of digestion, it is believed to afford an opportunity of assimialation without overtaxing the digestive powers. It is stated to be indicated in digestive disturbances of children and adults characterized by milk dyspepsia, fat intolerance, eczema and vomiting. Beebe Laboratories, Inc., St. Paul, Minn.

Mercuric Oxycyanide.—For a description see New and Nonofficial Remedies 1921, p. 194. Mercuric Oxycyanide has been proposed as a substitute for mercuric chloride. Its antiseptic power is said to be greater and it is claimed to be less irritating than mercuric chloride because it does not act on albumin to the same extent. Representative syphilographers differ as to the use of mercuric oxycyanide intravenously. Some believe that its use should be limited to hospitals; others that it has no advantages over other and safer methods of administering mercury, while other consider it safe and valuable. But all are in accord that its safe use requires experience. Mercuric oxycyanide may be administered suboutaneously, intramuscularly or intravenously in the same doses as mercuric chloride.

Loeser's Intravenous Solution of Mercury Oxycyanide.—Each ampule contains 5 Cc. of solution, representing 0.008 Gm. mercuric oxycyanide N. N. R. New York Intravenous Laboratory, New York.

Ampules Ven Sterile Solution Mercury Oxycyanide, 0.016 Gm.—Each ampule contains 5 Cc. solution representing 0.016 Gm. mercuric oxycyanide., N. N. R. Intra Products Co., Denver, Colo. (Jour. A. M. A., Sept. 10, 1921, p 863).

Calcium Caseinate.—Calcii Caseinas.—Casein from cow's milk, rendered partially soluble by combination with calcium and containing not less than 1 per cent. of calcium. The diarrheal diseases of infancy are now generally treated by dietetic measures. A useful food may be made from the curd of milk and diluted buttermilk, the resultan mixture containing a moderate amount of fat, a small amount of sugar and a large amount of protein (casein) and salts, particularly salts of calcium. A mixture of calcium caseinate and milk is also used. For children, calcium caseinate is mixed with milk and water or milk and gruel in the proportion of 10 Gm. calcium caseinate and one pint of the liquid and the mixture boiled. Calcium caseinate is a yellowish powder, free from rancid or sour odor. With warm water it forms a turbid suspension. Calcium caseinate must not contain more than 10 per cent. of moisture, nor more than 2.5 per cent of fat and not less than 14 per cent of nitrogen.

Benzyl Succinate.—Benzylis Succinas.—The dibenzl ester of maccinic acid. Benzyl succinate lowers the tone of unstriped muscle, its action being similar to benzyl benzoate in this respect. It is superior to benzyl benzoate in being less irritating, less nauseating and in containing a greater proportion of benzyl radicle. Its use has been suggested as a renal, biliary, uterine and intestinal colic, excessive intestinal peristalsis, dysmennorrhea, hiccough and other spasms of unstriped muscle. Its clinical use is still in the the exeprimental stage. The dose is 0.3 to 1.0 Gm. Benzyl succinate is a crystalline, orderless and almost tasteless powder. It is almost soluble in water, but soluble in alcohol.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Studies In Deficiency Diseases. By Robert McGarrison, M. D., D. Sc., Hon. LL. D. Fellow of the Royal College of Physicians, London, Laureat de L'Academie de Medicine, Paris, etc. Cloth 270 pp. $10. Oxford Medical Press, London and New York, 1921.

In part I are considered vitamines; in part II the factors influencing the onset of deficiency diseases and symptomatology in animals; in part III the effects of deficiency disease on the endocrines and various organs of the body and the functions of vitamines; in part IV the practical application of the foregoing, and the effects in the human on the gastrointestinal tract, consideration of pellagra and beri-beri, and finally the selection of food.

The work is a very elaborate account of recent personal and other experimental researches into the nature of deficiency diseases. The writer finds that prescorbutic states, endocrine disturbances, pancreatic insufficiency are often due to food deficiencies. He also affirms that infantile diarrheas and dysenteries may also be caused by lack of vitamines. Chronic gastrointestinal disease, colitis, intestinal stasis, intussusception and even gastric and duodenal ulcer are favored by a deficiency diet, i. e., deficiency in vitamines. The deductions resulting in the opinion as to the cause of the above diseases were drawn from observations on large series of animals, in which these disorders occurred on deficiency diets. So it was found in animals on deficiency diets that congestive and degenerative changes in the bladder commonly resulted, and the author deduces that the same must occur in prescorbutic states in children with enuresis. He notes in this connection that enuresis became extraordinarily prevalent in Germany during the war, owing to malnutrition. There is no better study to be found of vitamines, which the writer regards as analogous to the spark in maintaining the activity of the gasoline engine, only in the animal mechanism the spark itself is largely dependent on the composition of the fuel mixture.

McGarrison's researches bear out those of our Goldberger that pellagra is due to deficiency of protein and vitamines. As regards beri-beri the author finds there are two types—one caused by lack of vitamines in polished rice, and another due to infections. He also believes that the disease is often caused by a combination of infections, connected with digestive disorders, plus avitaminosis. The book is a worthy and distinguished contribution by an eminent scientist to a most important department of dietetics and medicine and will be found of great scientific interest and practical value for physicians.

WINSLOW

The Evolution of Disease. With a Discussion of the Immune Reactions occurring in Infectious and Non-Infectious Diseases. A Theory of Immunity, of Anaphylaxis and of Antianaphylaxis. By Prof. J. Danysz, Chef de Service, Institut Pasteur, Paris. Translated by Franis M. Rackemann, Assistant in Medicine, Harvard Medical School and in the Massachusetts General Hospital, Boston, Mass. Cloth, 194 pp. Lea & Febiger, Philadelphia and New York. 1921.

In this book is traced the natural synthesis of the most perfect product known to us, the albuminoid particle or unit, upon which health or life depends. It is constantly rebuilding as it wears out or undergoing reconstruction and decomposition. It is continually utilizing the simpler nutritive elements found in its enivironment and, when sufficient building material is at hand, it may split in two parts. It is this nutrition and multiplication which spells life. The particle ages as its elements become more stable and dies when stability reaches the point when there is not enough exchange to produce the heat indispensable to life. When the particle finds strange elements requiring fixation by their affinities, the nutrive equilibrium will be so modified that the cell may become diseased and die. This is the basis for the study of disease and immunity in this book. Professor Danyz in this work develops a most illuminating theory of the evolution of chronic morbid states. He begins with the consideration of Metchnikoff's biologic and Erlich's biochemic theories of immunity which he shows have had a great influence on the later development of more rational hypotheses but are in themselves so incomplete. The book is a most valuable and original contribution.

WINSLOW

Operative Surgery. By J. Shelton Horsley, F. A. C. S. Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. With 613 Original Illustrations. 721 pp. $10. C. V. Mosby Company, St. Louis Mo. 1921.

Dr. Horsley has given us a work which embodies in an excellent way his extensive personal experiences and, tho it is not intended to be a conventional text-book or an encyclopedia of surgical operations, all of those procedures which he has found of value are mentioned or described. It is modern in its trend of thought and emphasizes in every chapter the importance of those physical functions which are often so little regarded by the clever operator. Particularly is this seen in relation to those branches where the author has done original work, such as blood-vessel suturing, blood transfusion and the reversal of the circulation, formation of a new common duct, cholecystenterostomy and pyloroplasty, the last mentioned particularly being in his hands unusually successful on this account. The illustrations thruout are appropriate and illuminating, over 600 being used to amplify the text. The book should appeal equally to the student of surgery and the surgical specialist because its foundation is broad, its descriptions are clear and it is based entirely upon the author's own work.

FORBES

Graphic Methods In Heart Disease. By John Hay, M. D., F. R. C. P. Honorary Physician, Liverpool Royal Infirmary. Introduction by Sir James Mackensie. Cloth. 171 pp. Oxford University Press. London and New York. 1921.

This is a most excellent monograph on the use of the ink-writing polygraph with a closing brief section on the electrocardiograph. The ink polygraph records simultaneously tracings from the radial artery and jugular pulse, apex beat or liver. By taking simultaneous tracings of the venous and arterial pulses, or of the venous pulse and apex beat, we obtain facts concerning both the right and left sides of the heart. The instrument is not very expensive but is difficult to secure in this

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country at present. With it one can diagnose most of the cardiac conditions interpreted by the very expensive and easily disordered eletrocardiograph. In the present book are described the methods of obtainig tracings and their interpretation in the diagnosis of various heart lesions and disturbances of function. The description is as lucid and simple as possible and aided by a great number of illustrations, in which may be found examples of all the more common variations from the normal rhythm. The work is thoroly practical, free from controversial theories, and of the same high standard of excellence characteristic of all the Oxford pulications. WINSLOW

A Practical Treatise on Diseases of The Skin. For the use of Students and Practitioners. By Oliver S. Ormsby, M. D. Professor and Head of the Department of Skin and Venereal Diseases, Rush Medical College, etc. Second Edition. Thoroughly Revised. Illustrated with 445 Engravings and 4 Plates in Colors and Monochrome. Cloth. 1666 pp. Price $10.00. Lea & Febiger, Philadelphia and New York. 1921.

Those who knew and appreciated Dr. Ormsby's work in its earlier edition will be very much pleased to find it revised and brought up to date in this beautiful new edition. It exhibits the same clarity of expression and vivid description which made the original work so valuable and at the same time places before us all that is new in the rewitten and added subjects. The new illustrations are particularly fine and add much to the value of the work. Its value as a reference book is enhanced by the full bibliography running along with the text rather that consolidated at the end of each subject. The avowed purpose of the work—a text book for students and practitioners—is fully covered in an admirable way. CRABTREE

Text-book of Medical Jurisprudence and Toxicology. By John Glaister, M. D., D. P. H. (Camb.), F. R. S. E. Professor of Forensic Medicine and Public Health in the University of Glasgow, etc. Fourth Edition with 137 Illustrations and one colored print. 902 pp. $7.50. William Wood & Co., New York. 1921.

This fourth edition appears six years after the previous one. Forty pages of text are added, dealing with industrial and other poisoning, lunacy laws and the relationship of toxicology to responsibility for crime. Section I is devoted to medical jurisprudence. It contains a wealth of information on all phases of medical evidence, death in its various aspects and relationship to medico-legal affairs. Of special interest are the chapters on the identity of the living and the dead, relative to anthropometry, finger prints, bodily markings, hand writing, deformities, mistaken identity and similar subjects. It is impossible in a brief review to mention the numerous matters pertaining to this subject that are herein described. Section II deals with toxicology. The metallic, non-metallic and vegetable poisons are described in detail with discussion as to their formation, actions and identification in the human body. Any one dealing with medical jurisprudence should have this book available. SMITH

General Pathology. By Dr. Ernest Ziegler, Professorof Pathological Anatomy and of General Pathology in the University of Freiburg in Bressgau From the Eleventh Revised German Edition. Revised by Douglas Symmers, M. D., Director of Laboratories, Bellevue and Allied Hospitals. With 604 Illustrations in Black and in Colors. 594 pp. $7. William Wood & Co., New York, 1921.

For years this work has ranked so high in medical opinion, and is so well known to most practitioners of medicine that it needs little comment. This, the fifth American Edition, is reduced in volume, and this reduction has resulted in clarity of expression without lessening its scope. The text is clear, concise and entertainingly outlined. The illustrations are profuse and really excellent. WEST.

The Medical Clinics of North America. Boston number. May, 1921. Vol. IV, No. 4. Bimonthly. W. B. Saunders Co., Philadelphia and London.

This number begins with one of Christian's characteristically sound and scientific talks on the right and wrong uses of diuretics in heart and kidney disease. There are two excellent papers on seasonal hay fever, by Walker, and on the vaccine treatment of asthma, by Rackemann. The latter is useful in more advanced and late cases with bronchial infection, where foreign proteins of the pollen, animal exhalation and food types are not the direct exciting causes. In mixed infection the special organisms that give most local reaction in vaccines are those most curative. The tables, grouping 534 cases of asthma according to modern etiology, will be found most instructive. Two very interesting articles are those by Lecke on syphilis of the lung, and malignant disease of the lung, by Robey. In the latter's cases fever and sweating do not occur and are not mentioned as characteristic and yet fever is present in half the cases of cancer of the lung and, with sweating, often mislead the attendant into the diagnosis of tuberculosis. There is an excellent clinical talk on rapid heart action by Levine, including especially paroxysmal tachycardia and auricular fibrillation. He shows that pressure on either carotid in the neck, on the eye balls, or holding the breath, may often stop the tachycardia in the paroxysmal form. No publications possess more lively interest or practical value than Saunder's Medical (and Surgical) Clinics. WINSLOW

American Red Cross Work Among the French People. By Fisher Ames, Jr. 178 pp. The Macmillan Company, New York, 1921.

This book gives an interesting account of the activity of the American Red Cross among the French people during the war and for several months following. It illustrates the real aid which this American organization extended to the French nation during this trying period. One wishing to get accurate information on this subject will find the details in this book. SMITH.

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ORIGINAL CONTRIBUTIONS

ARTERIOSCLEROSIS,*

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SAN FRANCISCO, CALIF.
From the Pathological Laboratory of the Stanford University Medical School.

For the purposes of this discussion I shall assume that the ordinary lesions of arteriosclerosis are well known to all of you. For this reason I shall mention them only very briefly. They consist of changes in the various coats of the arteries which terminate in a hardening (sclerosis) of these blood-vessels.

The most noteworthy alterations are found in the intima and consist in a swelling due to infiltration with plasma and few leucocytes, followed by fatty degeneration of the intimal cells. This is all we find in the early fatty streaks in the aorta and larger blood vessels. The exact relation of these to the later stages of arteriosclerosis is still undetermined. In fully developed arteriosclerosis there is added a proliferative process in the intima, leading to fibrous thickening. We also always find some changes in the middle and outer coats. In the media these are mostly degenerative and frequently associated with calcification; in the adventitia they are more of a proliferative nature, gradually leading to the development of more fibrous tissue in this region, which process may be preceded by some round celled infiltration about the vasa vasorum. The latter themselves may exhibit signs of arteriosclerotic thickening. In extreme cases the entire wall of the artery may be almost entirely changed to dense fibrous tissue, in which there are large irregular areas of degeneration and calcification. The visible effects of this peculiar disease upon the arteries of different size and structure is somewhat varying.

LESIONS IN THE AORTA.

In the aorta we find the development of what is usually designated as atheroma. We observe the formation on the inner surface of numerous "plaques", in the depth of which there is usually much degeneration and eventually necrosis, leading to the formation of grumous material (athere). This process is often associated with much calcification, so much so that the aorta may be converted into an almost rigid tube. The circumscribed thickenings of the intima frequently surround the openings of the intercostal arteries. The plaques, containing much grumous material, are apt to rupture on the inner surface and cause the formation of atheromatous ulcers. In advanced cases the aorta always looses a good part of its elasticity.

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*Noble Wiley Jones' Lecture Delivered at the Medical School of the University of Oregon, Portland, Ore., May 31, 1921.

As a natural consequence there is considerable dilatation and stretching, but the histologic changes in the media and adventitia are usually relatively unimportant and it is still a question whether the lesions in the aorta in ordinary atheroma ever become severe enough to end in the formation of aneurysm.

LESIONS IN THE LARGE ARTERIES.

In the large branches of the aorta the changes are very similar but as the arteries decrease in size the lesions in the middle and outer coats become more pronounced. There is still more tendency to cylindrical dilatation in the small arteries and in their case aneurysms no doubt may arise from this cause. This is especially true of the cerebral arteries. The medium-sized arteries are most frequently the seat of calcareous impregnation. In the arteries of the extremities we often find the Mönckeberg type of the disease, in which necrosis and calcification of the media is the predominating feature, with little change in the intima and adventitia. Sometimes the disease leads to obstruction rather than to dilatation. Serious obstruction of arteries of this calibre, however, usually results from secondary thrombosis rather than from the thickening of their walls.

LESIONS IN SMALL ARTERIES.

Obstruction is the usual result in small arteries, where we observe what has been so aptly designated as endarteritis obliterans. The intima becomes relatively so thick that the lumen is reduced to a minimum. The proliferation of the intima may occur quite acutely early in life and may be limited to certain areas without association with general arterial disease. In the more chronic forms of endarteritis which may be local, but which mostly are fairly general, there may be an abundant development of elastic fibers and lamellae in the thickened intima. This has been looked upon by Jores and others as an evidence of compensatory hypertrophy, designed to overcome the ill effects of vascular weakness or of hypertension.

It is interesting to note in passing how much, in fairly general arteriosclerosis even, the lesions may be limited to certain vascular territories. The small arteries of the kidneys, of the pancreas, of the spleen, of the brain, of the prostate and of the uterus are most frequently affected, whereas the small arteries of the skin, of the musculature, of the gastrointestinal tract are rarely involved.

LESIONS IN ARTERIOLES.

In the arterioles the lesions may again be quite different. Here the process often seems to commence with a subendothelial lateral thrombosis, followed by organization, in this way leading to fibrous thickening of the wall and more or less complete obliteration of the lumen.

NATURE OF LESIONS.

All these things are well known and generally accepted, but there is still much discrepancy of opinion in regard to the interpretation of these phenomena.

Originally it was believed that the condition was of the nature of a chronic proliferative inflammation, but very serious objection has been raised to this idea. It has been pointed out that the evidences of inflammation in the lesions are very slight and that mechanical factors apparently play an important role in the development of this disease. Thoma first suggested that the process might be an attempt of nature of restore normal circulatory conditions in weakened arteries, and the modern writers on arteriosclerosis almost without exception favor the view, that the disease is due to wear and tear of the arteries which is followed by reparative processes which tend to strengthen the weakened arteries. In some way these are thought to be associated with a tendency to degeneration. In the course of the latter the appearance of much lipoid material and eventually of cholesterol is very striking, which has suggested to some that these fatty materials might be a factor in the production of the disease.

This view received rather unexpected support from feeding experiments with cholesterol and cholesterol-containing substances like egg yolk. In the rabbit, an animal which does not consume much lipoid material in its natural food, the feeding of such substances in large quantities produces fatty streaks in the aorta and pulmonary arteries which bear a close resemblance to early lesions in human arteriosclerosis. I believe that these experiments are more interesting in connection with the question of the ultimate origin of the fatty substances in the lesions in arteriosclerosis, than in connection with the question of the etiology of the disease. They suggest that the fat which we find in the sections may not have been formed in situ but may have been absorbed from the blood stream. It may be true, however, that the development of the disease is favored by the presence of these bodies in excessive quantity in the blood stream, and to this extent nutritional disturbances or changes in the lipoid metabolism may be of some importance.

ETIOLOGY OF LESIONS.

Even if we assume that wear and tear of the arteries is the most important factor in the development of arteriosclerosis, the question remains unanswered what produces this wear and tear in the individual case. In the so-called senile form of the disease it might result from the gradual wearing out of the tissues, but we all know that the most severe forms are found in comparatively young individuals, where this explanation could not possibly hold. One has, therefore, searched for other possible causes of deterioration and has considered in this connection the probable influence of chronic intoxications and chronic infections.

There was a time when clinicians especially were fascinated by the possibilities of mischief from the absorption of poisonous material developed in the intestines. Quite an elaborate system was built up on the basis of this idea under the general heading of "auto-intoxication," but very little of this teaching has been able to stand the test of time and experience.

It has also been pointed out that the individuals suffering from arteriosclerosis are often of the active type, people who do things, who work fast and furiously, who worry much, who also enjoy the pleasures of life excessively and in this way ruin their arteries which so readily respond to emotional stimuli. At best influences of this kind can be only predisposing factors. In themselves they are insufficient to accomplish the result and they are frequently absent. No doubt something much more serious must happen to the arteries before they respond with such profound alterations.

For the same reason it is very unlikely that the constant strain thrown on the arteries by hypertension can be any more than a predisposing factor in the development of the arteriosclerotic lesions. The mere fact that high blood pressure may exist for a long time without leading to the development of general arteriosclerosis shows this only too clearly, and how many cases of general arteriosclerosis are there without hypertension!

IMPORTANCE OF INFECTIOUS DISEASES.

The importance of infectious diseases in the causation of arteriosclerosis has been emphasized especially by French medical writers. They have attacked the problem in many ways after Guéneau de Mussy originally discovered that articular rheumatism and other forms of what was then termed rheumatic diathesis or arthritisme frequently preceded arteriosclerosis. They pointed out that in rheumatism, and in typhoid fever also, the arteries are quite frequently acutely attacked with the production of an acute arteritis which may or may not be followed by thrombosis. From these observations of acute injury they concluded that in these diseases the arteries frequently must be involved less severely, which might alter them sufficiently to lead to arteriosclerosis ultimately. They have also attempted to produce chronic arterial lesions experimentally by the intravenous injection in animals of bacteria and bacterial toxins. Altho some of these experiments produced suggestive lesions in the aorta, general disease of the arteries was conspicuously absent and they are, therefore, by no means conclusive.

Considerable support to this hypothesis of the importance of infectious diseases has been given by the careful anatomic work of Wiesel who demonstrated microscopic lesions quite widely disseminated in the arteries of children and young adults who had died of various infections such as diphtheria, scarlet fever, measles, varicella, pneumonia, influenza, septic diseases and typhoid fever.

On the basis of clinical observation Thayer, of Johns Hopkins, has attempted to demonstrate a connection between typhoid fever and chronic arterial disease. It has also been asserted occasionally that chronic tuberculosis was an important factor in the production of arteriosclerosis, and there is an impression quite commonly prevalent among the medical profession that among all infectious diseases syphilis is the most important in this regard. In this connection it must be understood, of course, that the specific lesions of syphilis in the aorta and in the cerebral vessels are not to be confused with ordinary arteriosclerosis, however closely they may at times resemble it.

On the basis of the preceding observations infectious diseases are usually enumerated among the causes of arteriosclerosis in our modern text-books, but the statements in this regard are always rather vague and general.

My interest in this question was aroused by my studies on the relation of chronic infections to chronic nephritis, because arteriosclerosis is so frequently associated with this latter disease. For this reason I have recently gone over a consecutive series of 500 complete* cases with this particular point in view.

These cases were tabulated and segregated in age groups of five years each. The relative incidence of slight, moderate and severe general arteriosclerosis in the different groups was then plotted with the following results:

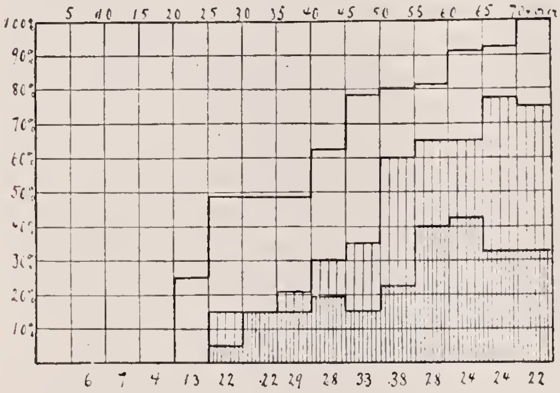

TABLE I
Severity of disease indicated by shading. Figures at base line indicate total number of cases in each group.

This table shows that in a series of unselected cases there is a gradual increase in the frequency of marked general arteriosclerosis, commencing at 25 and rising to 80 per cent, if we include the moderate cases and 40 per cent in the severe cases alone by about 60 years of age. In the severe cases there seems to be little if any increase after the age of 65. This fact and the early beginning of the rise in the curve at the age of 25, to my mind, prove that age alone cannot be the determining factor.

Next the curve of incidence was plotted in the naturally few cases, in which there was no history or other evidence of preceding severe infection. As shown in table II the difference between the two curves is very striking.

There are altogether very few cases of arteriosclerosis in this group and the first marked case was found after 40. It is quite possible that even in these few positive cases a preceding infection was overlooked in taking the history or had escaped the memory of the patient.

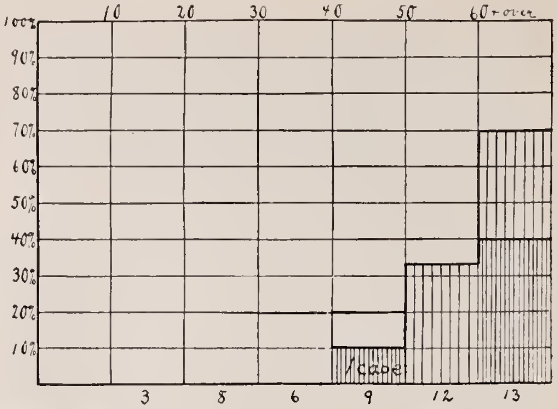

TABLE II
Relative incidence of general arteriosclerosis in cases without severe infections.

Among the cases with a history of preceding infection or anatomic evidence of such, one group was especially selected which contained all cases of what for want of a better name we might call chronic septic infection, i. e. cases with conditions that are commonly ascribed to streptococcal infections, such as repeated attacks of tonsillitis with or without endocarditis or involvement of joints and cases with other more or less hidden septic foci. All cases with a history of "malaria" were also included, because in our part of the country chronic septic conditions are very frequently confused with malaria. Since malaria certainly has no effect upon the arteries, this inclusion could have vitiated the result only in a negative way. Many of these cases at one time or another had a mild endocarditis which had not been recognized clinically, but was revealed at autopsy by the presence of usually healed but always distinct and often quite extensive old lesions in the heart valves.

The result of the tabulation in this group is shown in table III.

In this table the cases of nephritis are indicated by oblique hatching from left to right and the cases with hypertension by oblique hatching from right to left. All cases of subacute and chronic nephritis and all cases of hypertension in which there is a full history appear in this group. I believe that the difference in incidence in this group as compared with the preceding one is so great that one can hardly avoid the conclusion, that these types of chronic infection are quite material in the production of general arteriosclerosis and

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*Cases in which there had been obtained a good clinical record and a careful postmortem examination.

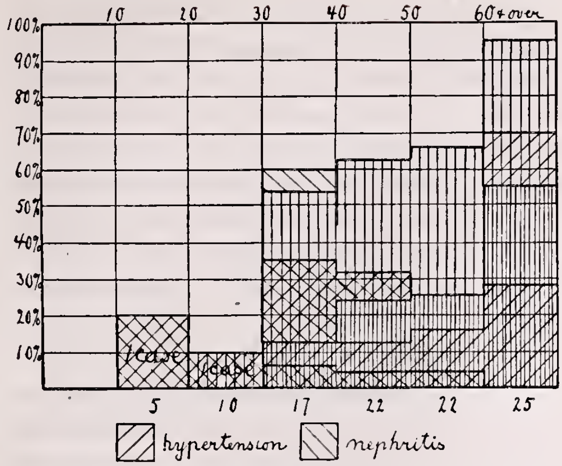

TABLE III
Relative incidence of general arteriosclerosis in septic cases. (Chronic streptocccal infections.)

allied conditions. This observation still leaves it as an open question how these septic conditions affect the arteries, if they do so.

Should after all arteriosclerosis be a real inflammatory process, modified by the peculiar construction of the arterial wall or could the toxins of the streptococci have a peculiarly destructive effect upon the walls of the arteries, starting the intricate degenerative and reconstructive processes in them which have been previously alluded to or could these infections in some way influence the cholesterol metabolism? All these are questions which still await further investigation and final solution.

IMPORTANCE OF TUBERCULOSIS AND SYPHILIS.

In the light of these findings in chronic septic infections the condition of the arteries in other chronic infections naturally becomes of considerable interest. The following two tables reveal the situation in chronic pulmonary tuberculosis and in syphilis. (Tables IV and V).

Positive assertions to the contrary notwithstanding, the rarity of marked general arteriosclerosis in chronic tuberculosis is a matter of common knowledge and is apparently not merely due to the fact that the victims of this disease usually die before the arteriosclerosis age. This is confirmed by table IV.

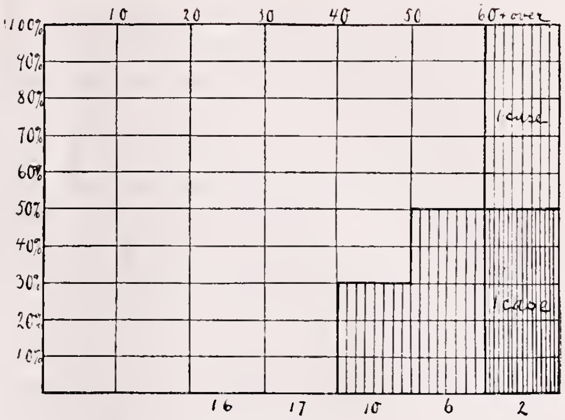

TABLE IV
Relative incidence of general arteriosclerosis in patients with chronic pulmonary tuberculosis.

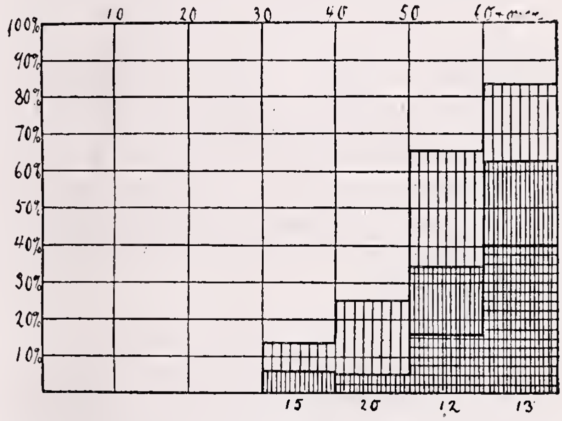

TABLE V
Relative incidence of general arteriosclerosis in patients with syphilis. Horizontal lines indicate cases which there was also evidence of chronic septic infection.

Of syphilis, however, it is quite commonly believed that this disease does affect the arteries in a general way, and may have some connection with the development of either local or generalized arteriosclerosis. In table V the statiscal results in our cases with known syphilitic infection are graphically represented and it is also indicated what proportion of the cases with arteriosclerosis in addition showed evidence in some form or other of preceding chronic septic infection. If these latter cases are elimated, the incidence of arteriosclerosis in chronic syphilitics is not much larger than that in the group of cases without evidences of preceding infection. I believe, therefore, that we may safely conclude that it is quite doubtful whether syphilis stands in any direct relationship to the ordinary form of arteriosclerosis.

In conclusion, we may say that no condition seems to be so important in the development of chronic arterial dissease as chronic septic infections of streptococcal origin. The real importance of these we are only gradually beginning to understand and the multifarious manifestations of them are exceedingly puzzling both to clinicians and pathologists.

SECONDARY EFFECTS OF ARTERIOSCLEROSIS.

There remains to be discussed the effect of arteriosclerosis upon the circulation, local and general.

LOCAL CHANGES IN BRAIN.

So far as local changes are concerned, we meet with the simplest conditions in the brain. The cerebral arteries beyond the arterial circle of Willis are to a great extent terminal arteries. When they become partially obstructed, the nutrition of the various territories of the brain supplied by them necessarily suffers and from clinical experiences we must conclude that these partly blocked arteries may become temporarily completely closed by spasms. How else could we explain the numerous cases of arteriosclerosis of the cerebral arteries with transitory severe cerebral symptoms. This tendency to spasm in the arteriosclerotic arteries has also been noticed elsewhere. If the block becomes permanent, usually as a result of secondary thrombosis, more or less extensive areas of softening result, the symptoms naturally depending upon the location of these areas of destruction in the brain tissue.

LOCAL CHANGES IN EXTREMITIES.

Similarly in the extremities the effect upon the tissues is merely the result of the mechanical obstruction of the arteries causing interference with the blood supply to them. Here the arteries are not terminal arteries but they became diseased so generally, that a proper collateral circulation cannot become established. The eventual outcome is necrosis of more or less tissue followed by gangrene.

Among this group the presenile cases with multiple, often more or less symmetrical, gangrene are the most interesting ones. In them the symptoms usually start with evidences of arterial spasm, and in this way the symptom-complex of Raynaud's disease is produced which later is followed by gangrene. In most of these cases the early changes are found in the small and smallest arteries and consist in a peculiar granulomatous thickening of the intima which I should judge must be caused by a specific virus.

The larger arteries become affected secondarily by an ascending thrombosis followed by organization (thromboangitis obliterans).

LOCAL CHANGES IN GASTROINTESTINAL TRACT.

It is my personal opinion that conditions similar to those in the arteries of the extremities frequently prevail in the arteries of the stomach and duodenum, and that as a consequence acute and chronic ulcers arise in those parts of these organs in which the arterial anastomoses are most poorly developed, as in the pylorus and in the first third of the duodenum. Here also we can distinguish between early and more acute ulcerations, due to a peculiar form of acute endarteritis and late and extremely chronic ulcers, due to ordinary arteriosclerosis.

LOCAL CHANGES IN HEART.

In the myocardium matters are somewhat more complicated by the fact that defects in the musculature are frequently produced by chronic inflammations which occur precisely under the same conditions which favor the development of disease in the coronaries. If we, therefore, find a simultaneous occurrence of disease in the coronaries and of myocardial scars, we are not justified in concluding at once that the disease of the blood vessels is the primary phenomenon, because the possibility exists that the arteries and the corresponding part of the myocardium have been affected simultaneously. In the heart we may have scars without vascular disease or scars only loosely associated with vascular disease, and then again we meet cases in which the development of the scars is quite evidently due to primary disease of the blood vessels. In these latter cases the scars may develop as a result of the organization of areas of anemic necrosis, if the obstruction involves a large branch rather suddenly usually by thrombosis, or as a result of gradual disintegration of the musculature and filling in with scar tissue, if the obstruction is a more gradual one.

The effect of these conditions on the action of the heart depends entirely upon the extent and location of the interference with the blood supply or of the resulting scars. The most dramatic effects are naturally seen in persons afflicted with severe, often purely local and premature arteriosclerosis of the coronaries, with large scars and frequently teminating with eventual thrombosis. These patients exhibit the characteristic symptoms of angina pectoris.

How far many small scars rather diffusely scattered thru the myocardium interfere with the action of the heart is still an unsolved problem. An attempt has been made by Krehl and Romberg to demonstrate that the myocardial insufficiency in chronic heart disease is often due to this cause, but carefully conducted control investigations by others do not altogether seem to support their contention.

LOCAL CHANGES IN KIDNEYS.

Much more difficulty is encountered in disentangling the intricate relation of chronic arterial disease to local lesions in the kidneys. There are cases in which the renal arteries are so badly diseased that larger branches become obstructed completely, and as a result we observe the formation of anemic necrotic infarcts, usually simultaneously with similar lesions in the spleen. These are organized and eventually replaced by scar tissue. Observations of this kind are quite rare.

Ziegler has suggested a more indirect relation of arterial disease in the kidneys to the subsequent development of scars in these organs in this way; that the arterial disease would extend to the glomeruli, causing an obliteration by fibrosis of these organs; this, then, would be followed by collapse of the corresponding tubules by inactivity, and filling in with scar tissue. Ziegler suggested this possibility as an explanation for the small scars which we find so frequently in the kidneys of old people with arteriosclerosis, but since then his idea has been extended to cover much more extensive lesions. In fact, many cases of severe contraction of the kidneys, with and without parenchymatous lesions of a serious nature, have been referred to this cause and we now hear much discussion of what is termed "arteriosclerotic" nephritis. The general understanding is that in these cases the arterial disease is primary and the changes in the kidneys purely secondary.

I have never been quite ready to accept Ziegler's original idea, because even in these small old foci one usually finds unmistakable evidence of inflammation in the renal tissue and because in some of these foci the lesions in the arteries and in the glomeruli are not severe enough to explain the tissue changes.

Now that it is becoming more and more evident that the vascular disease and the tissue changes are the result of the similar causes, acting simultaneously on both structures, the discussion of which of them is primary appears to be of much less consequence and I believe we come much nearer the truth, if we assume that the bacterial toxins or whatever may be at the bottom of these processes may affect either the blood vessels alone or the renal tissue alone or both conjointly. This may occur either locally, leading to focal trouble, or diffusely involving the whole organ more or less extensively. For this reason I feel justified in postponing the discussion of these renal lesions and their relation to arteriosclerosis to my second lecture which will deal with nephritis.*

RELATION OF ARTERIOSCLEROSIS TO HYPERTENSION.

Finally I may be permitted to say a few words in regard to the relation of arteriosclerosis to high blood pressure. Here we meet with what I would call an "associated" condition, meaning that the connection between the disease and the "associated" disturbances is evidently a rather loose one. We all know that in many cases of severe general arteriosclerosis the blood pressure is not elevated and also that there are cases of "hyperpiesis," as Allbutt calls them, in which the arteries are practically in a normal condition. From this we may safely conclude that it is not the structural change in the arteries which forces up the blood pressure, but some functional derangement in the physiologic mechanism which controls blood pressure. This loose association between arteriosclerosis and hypertension is brought out very clearly by our own cases as shown in table VI.

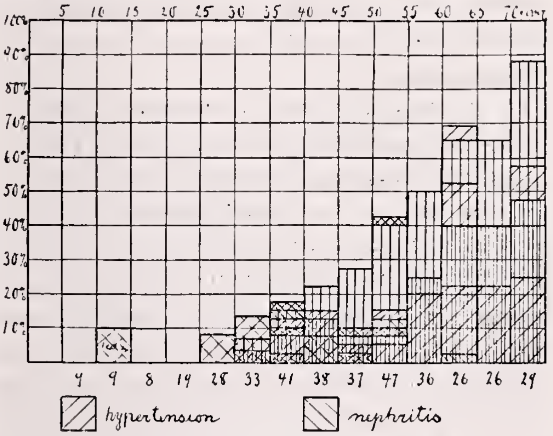

TABLE VI
Relative incidence of general arteriosclerosis hypertension and nephritis.

This table also indicates the relative coincidence of severe diffuse nephritis with arteriosclerosis and hypertension. It shows that hypertension on the whole is more regularly associated with nephritis, even tho in this disease the arteries need not be seriously diseased. There are, however, cases of severe nephritis, plus general arteriosclerosis, in which hypertension does not develop. Again, there are some cases of only moderate general arteriosclerosis without nephritis, in which the blood pressure is high.

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*See Nephritis, Northwest Medicine, Aug., 1921.

Practically all our cases of severe nephritis died before the age of 55. In the age group between 55 and 70 and over there are many patients with moderate or severe arteriosclerosis, in some of which the blood pressure was high, while in others it remained within normal limits. A marked hypertrophy of the left ventricle, not explained by valvular lesions, was regarded as evidence of continued high blood pressure, even tho clinical examination in the late stages of the disease might actually show a drop in the blood pressure below the normal. As a rule clinicians in public hospitals see these cases of hypertension without nephritis during the late stages as fully developed cases of "cardiovascular disease." At this stage the signs of cardiac decompensation are evident and the myocardial weakness is pronounced. The blood pressure then may be low, even between periods of marked decompensation, and only after death it is revealed by anatomic investigation that there must have been a long preceding stage of high pressure. No wonder that the clinician looks for an explanation of the trouble in the myocardium, when as a matter of fact he is dealing with a heart muscle which is fairly normal but in the last stages of exhaustion from overwork.

In the last age group of 70 years and over, among the patients with severe general arteriosclerosis, the proportion of hypertension cases was about 50 per cent, and among patients with moderate general arteriosclerosis about 33 per cent, demonstrating that this condition is somewhat more frequently associated with severe forms of general arteriosclerosis. A careful comparison of the gross and microscopic lesions in the kidneys or in the renal arteries and their branches in these two groups of cases did not seem to reveal any essential difference between those with and those without hypertension.

The cases of "essential" hypertension, i. e., hypertension without serious lesions either in the arteries or in the kidneys, are naturally of the greatest theoretical importance. Among our entire material of several thousand necropsies there were three such observations. One of these referred to a patient of only 29 years with a very marked hypertrophy and dilatation of the entire heart, in whom there were only a few yellow streaks in the aorta and a few very small scars in the kidneys. In the other two the arterial lesions were slightly more marked and so these latter connected up with the nine high pressure cases in our present series of 500 necropsies, in which the arteries were only moderately diseased and the kidneys practically normal.

I believe that the existence of such cases indicates only too clearly the functional nature of the change in the blood pressure, and I think we have good reason to believe that the source of the disturbance must be located in the arterioles all over the body which force up the blood pressure by a lasting increase in there normal tonic contraction, just as is done temporarily by adrenalin injection. This is the reason why so many investigators have attempted to demonstrate a hyperactivity of the adrenals in such cases but without any conspicuous success. It may even be that the increased resistance which causes the rise in pressure is situated further along in the capillaries.

If we have to assume that the disturbance is of a functional character in these cases, with no or only moderate lesions in the arteries, then the same would naturally follow for the cases with severe arterial disease which is all the more likely, because even in these severe cases the anatomic lesions in the small arteries are usually limited to certain territories and do not affect practically all of them, as they would have to do in order to produce a lasting effect upon the blood pressure.

We are still entirely in the dark as to the real cause of this assumed functional disturbance in the arterioles or unknown change in the capillaries which forces up the blood pressure, but it may be suggested that it must be something which is in some way associated with the causation of both nephritis and arterial disease. If we are ready to believe, therefore, that both of these conditions are caused by complex toxic substances of bacterial origin, then the explanation of the whole matter would be much simplified, if it could be demonstrated that these same toxins under certain circumstances could raise the blood pressure by acting on the arterioles or other parts of the cardiovascular system. Rather suggestive experiments in this regard have already been performed by Läwen and Dittler, but much more work will have to be done before we can accept this explanation as a proved reality.

In the meantime, it appears to be a perfectly reasonable working hypothesis that the complex mixture of toxic material arising from infected foci, just as at times it seems to attack and alter the kidneys and at times more preferably the arteries, so it might provoke in the arteries or capillaries disturbances as a consequence of which high blood pressure would arise. It would then seem only logical, that in those cases, in which the arteries are affected especially severely anatomically, there would also be more likelihood of the development of functional disturbances in the blood pressure.

SELECTIVE REGIONAL LOCALIZATION IN ARTERIOSCLEROSIS*

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Repeatedly have we been impressed in our work, with a remarkable tendency manifested by arteriosclerosis to localize itself in certain parts of the arterial tree. Sometimes this is a localized accentuation of the process, at other times the localization is quite exclusively limited to a given area. This has been noted more particularly in connection with autopsies, but much more dramatically impressive are the clinical cases, in which some sudden vascular catastrophy is the first recognized sign of the disease, in which the peripheral, either paplpable or visible arteries are free from disease and the blood pressure normal.

The first case that brought this to us most impressively, and directed our attention to the necessity of more frequent clinical recognition of such cases, was a patient seen ten years ago in the person of a mining man. He had the usual habits of a man of means who has retired. He was in advanced middle age, not over-weight, the husband of a young wife, hence socially active and a member of local and California golf clubs which he used most assiduously. His complaints were directed toward his digestive apparatus, yet the findings were most uninteresting, in spite of his constant reiteration of various vague symptoms. Heart and blood vessels were negative, blood pressure normal and the urine showed an occasional pus cell, due to a very moderately enlarged prostate gland, which was subsequently removed with uneventful convalescence. There were no nervous symptoms except possibly a slight irritability and tendency to worry. There were no eye findings except an adequately corrected presbyopia (fundus examination was not made). Some months after his prostatectomy, when he had apparently taken a new lease on good health, he was suddenly seized with a typical attack of cerebral apoplexy, which caused his death while quietly resting at his summer home. So far as we know none of the many medical men thru whose hands he passed suspected cerebral arteriosclerosis.

Similar experiences since have persistently directed our attention to localized arteriosclerosis, and the need for clinical recognition of such cases, even when masked by normal peripheral vessels and blood pressure. It is our hope that this paper may lead others to learn the lesson at less expense than has been ours.

Arteriosclerosis when localized may be found as:

(a) Localized, without general involvement.

(b) Localized, accentuation of a general process.

In a general way the former may be said to be characterized by normal or very slightly increased blood pressure; the latter may be associated with vascular hypertension of varying degrees.

The following classification of the various types of localization will answer for both varieties:

(a) Central, in which the process is limited essentially to the aortic arch.

(b) Intermediate, in which the process is limited to the descending and abdominal aorta, often encroaching somewhat upon the splanchnic vessels.

(c) Peripheral, of which five more or less clear cut groups at once become apparent: (1) Cerebral, (2) coronary, (3) splanchnic, (4) renal, (5) brachiofemoral.

(d) Miscellaneous, (1) sclerosis of pulmonary artery, (2) sclerosis of portal vein, (3) phlebosclerosis.

All these varieties have pathologic justification and most of them clinical as well. The intermediate type is not often diagnosticable. The miscellaneous types are clinically not very important. They do, however, serve to furnish types of localization that are characterized by recognizable etiologic factors, from which certain general conclusions may be drawn.

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*Read before the Forty-Seventh Annual Meeting of Oregon State Medical Association and Fifth Tristate Meeting, Portland, Ore., June 30, 1921.

CAUSES OF SELECTIVE LOCALIZATION.

If we recognize regional localization or accentuation of atheromatous processes, we cannot help but speculate upon the reasons for such localization. Why, for example, should the coronary arteries be the only seat of atheroma extensive enough to be worthy of note, when other parts of the circulatory system are free from, or the seat of only minimal changes? Are there local conditions that determine this, is it a difference in the vasomotor control, or does this part of the vascular system work harder than others? Are there secondary or surrounding anatomic peculiarities that have a bearing? Do we have toxins with a selective action?

CORONARY ANATOMIC PECULIARITIES.

Local anatomic and physiologic peculiarities occur to one as most likely to be of importance. For example,the coronary arteries lie upon the surface of, and are imbedded in, the myocardium, where they are constantly agitated by its everlasting activity. Now they are stretched by diastole, again to be rendered tortuous and compressed by systole. They are but little protected from muscular trauma, either by location in general or by interposed fatty pads.

This constant agitation, alternate stretching and tortion on the one hand, compression and relaxation on the other, cannot help but be a factor in local injury, be the vessels ever so well adapted to these circumstances. The various layers of the vessels will be more or less loosened and separated from each other, to the end that reparative processes must take place; repair is the essence of arteriosclerosis.

CEREBRAL ANATOMIC PECULIARITIES.

The cerebral arteries, on the other hand, are the direct antithesis. These arteries are essentially enclosed in a rigid cavity, bony on the one side, padded within by a tissue softer even than fat, exposed to no muscular trauma, except that of their own scanty layer of muscle.

Anatomically there is, at least, some provision against localized increase in pressure, to which these vessels are at times exposed under circumstances to be mentioned later. The efferent sinuses are large, covered by non-collapsible layers of dura, and are capable of harboring greater quantities of blood than usually flow thru them, responding readily to the demands made when increased outflow is necessary.

The circle of Willis is a most adequate equilibrator of circulation, operative in both side to side and pole to pole equalization. The carotid and vertebral arteries are enclosed in bony canals and are, therefore, not subject to the increased flow caused by contracting muscles nor to the diminution incident to compression, either muscular or otherwise.

Yet in spite of all these *anatomic* preparations for increased local stress, the cerebral arteries are the seat of a localized arteriosclerosis more often than any other peripheral group of vessels, except possibly the coronaries. Clearly some other cause must be operative.

CEREBRAL PHYSIOLOGIC PECULIARITIES.

The cerebral arteries are very sparingly supplied with vasomotor, particularly vasoconstrictor nerves. This has been demonstrated in various perfusion experiments on the brains of lower animals. Such vasoconstrictions as are present operate under an extreme handicap. Picture the situation. A feeble vasoconstrictor action in blood vessels with a weak muscular layer, which are imbedded in a cavity that is virtually closed and therefore subject to the laws of hydrostatics of such cavities. Constriction, such as it is, in one area must be and is compensated for by dilatation elsewhere. Vasoconstrictor adjustment on the whole is therefore, inadequate and, if it occurs at all, is so delayed and hampered by physiologic and anatomic handicaps that much of its value is lost, when needed to meet oncoming masses of blood induced by vasoconstriction of a more effectual type elsewhere. These vessels suffer from the mechanical shock as well as the unusual stress induced by such masses of blood, especially in individuals subject to various forms of excitement, particularly fear. The frequency with which we see cerebral arteriosclerosis in neurotic individuals, men of affairs and professions lends strong support to this assumption.

INADEQUACY OF CEREBRAL VESSEL WALLS.

Especially inviting does this become, when one gives consideration to the weakness of the cerebral vessel walls. The media, and therefore the muscular tissue, is especially poorly developed in these arteries, when compared size for size with those elsewhere. The adventitia is almost entirely absent. Together these deficiencies result in a wall only one-fifth to one-fourth as thick as in those carrying a similar volume of blood in other organs. In arteriosclerosis it is just the media that is more or less spared; in other vessels this layer is the bulwark that guards against dangerous weakening, at least until the process is far advanced. In the cerebral arteries, these layers being deficient, nature makes great efforts to compensate for this weakness by producing vicarious tissues in considerable quantity, when atheroma develops in the intima. These tissues are subject to degenerative tendencies which soon weaken the walls sufficiently to permit some vascular catastrophe to occur. In a measure this is not so much a predisposition to localization of the process as it is a predisposition to catastrophe when the disease does occur. Nevertheless, these peculiarities of the vessel walls do sometimes invite the process to localize here, and to produce disproportionately severe lesions when the disease is general.

CORONARY PHYSIOLOGIC PECULIARITIES.

The coronary arteries differ from the cerebral in that they are thick walled and well muscled, but apparently this thick wall seems in itself to have become a predisposing factor to important types of change because of hypertrophic processes which result in narrowing of the lumen. Compare, if you will, the great frequency of thrombosis in these vessels with the relative rarity in the cerebral arteries.

In their vasomotor physiology there is, however, a similarity between the coronary and cerebral arteries. The coronaries lack the ability of responding as freely to vasoconstrictor action as other vessels, the cerebrals being excepted. This fundamental difference is best illustrated by the action of epinephrin, a general vasoconstrictor, which is inactive in the coronary arteries. Indeed, some writers, especially Langendorf (*Zeitschrift. f. Physiol.* 1908), state that this drug causes dilatation in this vascular area. Certainly these vessels must, like the cerebrals, suffer greater trauma when inadequately constricted during periods of adrenal activity and the general vasoconstriction and increased tension produced therebv. In the coronaries this inadequate preparation for epinephrin hypertension is possibly at times of physiologic value, e. g., in surgical shock. Eventually, when atheroma has begun, it becomes a factor in increasing that process locally, because an artery not constricted tends to stretch. Stretching induces reparative processes and, to repeat, the essence of arteriosclerosis is efforts at repair. In the cerebral arteries the same holds true but in a lesser degree and with a slightly different mechanism.

AORTIC PECULIARITIES.

Another factor that suggests itself as important fundamentally is the type of constriction and dilatation occurring in a given artery. Are we dealing with an active process produced by the vasomotor apparatus, as occurs in the average artery, or is it merely a passive stretching and elastic rebound as occurs in the non-muscular aorta? The frequency with which we find central (aortic arch) localization is more than suggestive that some anatomic peculiarity is operative in its production, especially since in the arch the changes are most marked where the strain is greatest, at the isthmus and about the orifices of the bronchial branches. Sooner or later passive stretching of the aorta followed by elastic rebound, repeating itself four thousand times per hour, tends toward a loosening of one layer from the other. Loosening demands repair, repair produces tissue of an inferior grade, a vicious circle is soon operative and vicarious tissues accumulate.

RENAL PECULIARITIES.

The renal arteries are relatively small but violently used. They are small arteries inserted directly and at right angles into the abdominal aorta. Being short in course, therefore subjected to high pressure, wear and tear is great. This is further augmented by their special function, by reason of which they carry the entire volume of blood more often than any other artery of like or even considerably greater size. In these arteries are combined extra hard work, both as to quantity and stress, frequent vasomotor adjustments and anatomic difficulties that have much to do with the fact that the renal arteries rarely escape marked change either in generalized or circumscribed arteriosclerosis.

SPLANCHNIC PECULIARITIES.

The splanchnic arteries are in some respects like the coronaries, they are located in and upon moveable and moving viscera, and therefore subject to certain muscular traumata. Peristalsis may not be as violent as cardiac contraction but it is comparable at least. In addition they are subjected to the pressure of gases, now under tension, soon to be relieved by propulsion and sudden shifting of the gases, and again violently agitated by the vasomotor stimuli necesscitated by digestive demands.

PORTAL PECULIARITIES.

Whether intestinal gases can cause local toxic changes by regional diffusion and thereby determine a mesenteric localization does not seem likely. But it is reasonable to assume that isolated sclerosis of the portal vein is favored by the toxic substances contained in its blood, which, having recently been absorbed from the intestinal canal, has not yet had the benefits of hepatic detoxication. No other local condition, anatomic, physiologic or toxic is quite comparable in its acceptability as the cause of regional sclerotic changes.

SPLENIC PECULIARITIES.

The frequency with which the splenic artery is found extensively sclerosed and calcified is more likely due to the excessive work done by this organ than to local toxic or infectious action, as it is not conceivable that this vessel contains more toxic blood than other branches of the celiac axis or for that matter the abdominal aorta. It is comparable to the renal arteries, both anatomically and physiologically.

PECULIARITIES IN THE EXTREMITIES.

In the extremities the one greatest localizing factor seems to be work. Muscular trauma, especially pinching of vessels between the belly of a muscle and bone or dense fascia, is greatest in hard workers and, to correspond, arteriosclerosis of the extremities is greatest in them. Whether temporary tortuosity, produced by flexion or by violent pulsation in "vaso-dilated" arteries, adds another factor to the mechanics that predispose to localization, is perhaps an idle speculation. It is noteworthy, however, that these very vessels are in hard workers the seat of a special type of arteriosclerosis, in which the changes begin in and are limited to the media and its musculature. This fact would make it seem less of an idle speculation after all.

TOXINS AND INFECTIONS.

The toxins or products of metabolism or infection that produce, predispose to, or excite processes that eventuate in arteriosclerosis are as yet only hypothetically established. Neither is their *modus operandi* known. We can, however, draw conclusions or inferences from the action of epinephrin. This is to all intents and purposes a toxin with pressor action, its constitution being known and its mode of physiologic action reasonably well understood. It acts upon the vasoconstrictor nerves in their endings in the vessel wall of arteries in the precapillary area. Arteriosclerosis, produced experimentally and as an unavoidable therapeutic accident, occurs proximal to this vascular area, in fact, chiefly in the aortic arch. It would seem, therefore, that we have two factors operative, one the increased pressure produced, but this being scarcely a satisfactory explanation for its extreme aortic localization, the other, a local toxic action, must be attributed to the drug itself. Some writers have mentioned other areas in which epinephrin may show isolated activity, notably the renal arteries.

Mutch mentioned a toxic substance isolated from the terminal ileum of constipated rabbits in a paper published three or four years ago. This substance produced, when injected, distinct vasoconstriction in the terminal arterioles in rabbits' ears. Having an action analagous to that of epinephrin. it is probable that its prolonged absorption will likewise produce localized arteriosclerosis. How many analagous toxic bodies there are is not conceivable; judging from the variety of intestinal processes and bacterial flora, it is evident that there are many, if any at all. If there are many, they surely differ sufficiently in action among themselves to have varying selective peculiarities.

Diabetes is a disease nearly always associated with arteriosclerosis. It is characterized by faulty metabolism and multiple infections. The toxic substances produced are probably much greater in variety than we know, some due to faulty metabolism, some arising in the concomitant infective processes. That these are in part at least the cause of the associated arteriosclerosis seems certain. That the process is much more marked in the lower extremity may be due to a selective action, tho greater blood pressure in the lower extremity may be the determining factor.

LOCAL HYPERTENSION.

The effects of localized hypertension are well exemplified by the sclerosis found in the pulmonary artery in cases of high degree mitral stenosis, where it causes increased tension in the lesser circulation. This localization may be absolute and is universally attributed to the increased pressure; in fact, it is the basis of much argument advanced in favor of the view that all arteriosclerosis is preceded by hyperpiesia.

If local hypertension can produce or predispose to arteriosclerosis in the pulmonary artery, it is reasonable to argue that the same effect will be produced by the constantly greater pressure in the vessels of the leg, when in the erect posture, as compared with the arm. Perhaps this is the factor chiefly involved in the selective localization of diabetic gangrene rather than some selective toxic process as previously suggested. Allbutt does not concede that the tension in the legs is greater than in the arms; apparently this point is not yet absolutely established, as there is no comprehensive research on the question. It is a subject that lends itself best to investigation by the clinician.

Central Arterioclerotic Processes.

Central processes may be divided into:

(a) Acute non-specific aortitis, strictly not arteriosclerosis, yet eventuating in that disease.

(b) Toxic degenerative atheroma, of which experimental epinephrin aortitis is the prototpye.

There is so much difference in the pathology of these two types that the classification given is quite unconciously arrived at.

ACUTE NON-SPECIFIC AORTITIS.

Acute non-specific aortitis is rather rare, at least it is more rarely diagnosed than the toxic degenerative process. When discovered, however, it is usually a serious disease, associated with various incapacitating symptoms, substernal pain being the most important. Usually there are no signs other than the systolic murmur or a to and fro sound heard over the arch. Often some form of aortic valvular lesion is diagnosed. A famous Chicago surgeon, who died a few years ago, is said to have succumbed to this disease.

The pathogenesis is not clearly understood. It seems certain that infective material cannot find lodgement on the intact aortic intima. If it occurs upon a previously diseased aortic intima, it must be regarded as a complication of a preceding disease, yet in this manner the same or similar results can be produced as in the primary variety. When it occurs as a primary process, it probably makes its attack thru the vaso vasorum by embolic action. The original focus may be anywhere in the usual sites for these foci, but many infections in the bronchial tubes, mediastinal lymph glands, pleural cavities or elsewhere in this vicinity seem to develop a predilection for aortic localization, whether by mere contiguity or by true metastasis is not clear.

It was our privilege to see the autopsy upon a case in which the process was secondary to a chronic bronchitis with an acute suppurative mediastinal lymph-adenitis as the focus from which the disease arose. The changes in the aorta proceeded to extensive breaking down of tissue and eventually to rupture into the bronchus with death simulating that of ruptured aneurysm. It had been so diagnosed.

TOXIC AORTIC DISEASE.

The toxic degenerative variety is much like that of general arteriosclerosis. Indeed, it is rare to find it localized exclusively in the aorta. That it may occur is quite evident from its experimental prototype, epinephrin aortitis.

We recently saw a case of this type in a small asthenic woman of sixty-four, where the local symptoms were so dominant that one lost sight of the fact that it was part of a generalized process. Systolic pressure was 200, diastolic 130. She complained of intense boring pain in the left shoulder, associated with precordial distress and a violent thumping pulsation in the suprasternal notch. Examination revealed the thumping to be due to presentation of the lengthened aortic arch at that point. Radiologically the arch was found to be widened as well as lengthened. Wassermann reaction was negative. Symptoms had been present for ten years.

INTERMEDIATE TYPE.

Intermediate arteriosclerosis, that which is limited to the thoracic and abdominal aorta, is not so rare at autopsy, but is so nearly non-diagnosticable that it need not be given extensive consideration. It is commonly found to be associated with splanchnic localization.

Peripheral Localization.

Peripheral localizations are by far the most important and impressive types clinically. They are not given the necessary recognition in the literature and, since clinical symptom groups can be established, they are worthy of careful study.

CEREBRAL ARTERIOSCLEROSIS.

Among the periphral localizations the cerebral is one of the most important; it certainly has not received the attention its frequency and importance warrant. None of the standard texts on neurology give a description of its pathology or symptomatology. The most important articles on this condition appeared in the early nineties in the German language, the first by Binzwanger, and shortly thereafter a more exhaustive one by Alzheimer. So clear cut was Alzheimer's description that certain severe forms of cerebral arteriosclerosis are still called Alzheimer's disease by neurologists. Very little has appeared since then, certainly not in the English language.

Cerebral arteriosclerosis may be divided pathologically into two great groups.

(a) Non-destructive types, in which the pathology is limited entirely to the vessels.

(b) Destructive types, in which there are, in association with vascular changes, certain changes in nerve structure of destructive nature.

NON-DESTRUCTIVE TYPES.

Non-destructive types are characterized pathologically by the absence of demonstrable changes in the parenchyma. The changes in the vessels are usually marked by patchy atheroma, altho extensive calcification may be noted.

The clinical manifestations may be more or less naturally classified into two groups: (a) Mild form, (b) severe form.

MILD FORM.

The mild cases are characterized by the picture of an asthenia of varying degree, developing without apparent provocation or superimposing itself upon some mild disorder that is not compatible with the symptoms. The most important of these are, first *vertigo,* or rather a sense of insecurity resembling ataxia; second, *headache,* persistent but mild thruout and not definitely localized; and, third, *insomnia.* These three coexisting symptoms, vertigo, headache and insomnia, constitute a triad almost pathognomonic in a patient of sufficient age to be arteriosclerotic. Various other symptoms are frequently present. Chief of these are *irritability* and *mental depression,* alternating. These patients are often the victims of *vasomotor disturbances* that give them an appearance of considerable anemia. Often they complain of *digestive disturbances,* especially if constipated. A peculiar feature is the jerky progress of the symptoms, the intervals being marked by remissions so marked that one will doubt one's own diagnosis.

That this type may suddenly change from a non-destructive to a destructive type is shown by the case cited in our introductory remarks, in which apoplexy occurred before the diagnosis of cerebral arteriosclerosis was made.

SEVERE FORMS.

More severe types occur, when the sclerotic processes cause greater decrease in the cerebral blood supply without correspondingly increased visible changes in the parenchyma.

Chief of the symptoms produced thereby is *loss of memory,* a symptom causing much irritability. Any mental productivity or originality, the patient may have had, suffer. *Disorientation* as to time and place may occur. *Confusion* sooner or later becomes quite manifest. Often long before these come on the patient becomes conscious of being seriously ill and he becomes markedly assiduous in his search for medical aid, yet cannot put his symptoms into recognizable or tangible form. It is not to be wondered that they are frequently misunderstood.

DESTRUCTIVE TYPES.

When one understands the anatomic possibilities in arteriosclerosis of the cerebral arteries, that, for example, some small vessel or group of vessels may cause destruction of a portion of the motor area on the one hand or, on the other, may destroy a part of the medulla or cerebellum, it becomes evident that the localizing signs may show as wide a difference as A and Z.

While there may be localizing signs as suggested, nevertheless the underlying clinical picture is much the same in all these cases. This is probably so because all destructive types have passed thru the non-destructive stage and retain some of the general symptoms in spite of the added localizing signs. It is, as it were, a non-destructive type, plus the signs of destruction.

PATHOLOGY OF THE DESTRUCTIVE TYPES.

The destructive changes may be divided quite readily in a manner that is of great aid in studying the clinical picture.

(1) Diffuse quite uniform processes, bilateral, producing changes chiefly in the cortex, possibly with patches, locally more completely destructive than is the general process, described by Alzheimer as progressive arteriosclerotic degeneration.

(2) Localized processes, where certain vessels especially in the subcortical and basal arears are selected, subcortical encephalomalacia.

(3) Cerebral apoplexy.

(4) Cerebral thrombosis.

Attention was previously directed to the weaker walls of the cerebral as compared with arteries elsewhere. In addition to this primary weakness there is, perhaps because of it, a tendency to produce excessive atheromatous change in the media. Such changes are likely to be associated with narrowing of the lumen by reason of hypertrophic changes, associated with advanced atheromatosis. For this reason parenchymatous changes are likely to occur sooner in a given case that in arteriosclerosis anywhere else, except possibly the coronaries.

The formation of small localized aneurysms of the cerebral arteries, often called miliary aneurysms, is another specialty of the cerebral vessels.

PROGRESSIVE ATERIOSCLEROTIC DEGENERATION.

The pathology of progressive arteriosclerotic degeneration of the brain is usually only slightly more conspicuous than that of the milder types; certainly scant, considering the severity of the clinical manifestations. When most marked, the changes are essentially small infarctions and cystic degenerations, located chiefly in the cortex. If these are absent, all that may be seen is the general changes, decrease in size of the brain both morphologically and by weight. The gyri are atrophic and the grooves for the vessels deepened. The ventricles are enlarged. The vessels strip more easily than normally from their grooves and are, of course, themselves markedly atheromatous.

Histologically it is difficult to find much that is characteristic except changes in the cells atrophic in nature; pyknosis is sometimes noted. There is an increase in glia formation, at any rate glial fibers are more easily noted, especially along the vessels.

Clinical manifestations of progressive arteriosclerotic degeneration of the brain begin where those of severe nervous types stop. Psychic manifestations are most marked. *Irritability, indecision* and *restlessness* are soon added. Progress is usually rapid, *attention* and *concentration* being no longer mental attributes. The patient soon sinks into a characteristic type of *stupidity,* associated now and then with focal signs, such as localized paralysis, aphasia or similar symptom groups. To put it briefly, more severe nervous symptoms, plus the signs of approaching dementia with now and then evidences of focal destruction, are the essential symptoms.

As in the preceding form, remarkable remissions may occur, sufficient in degree to make the friends feel that complete recovery may still be possible.

SUBCORTICAL ENCEPHALOMACIA.

Special classification on a basis of certain anatomic and pathologic criteria must be alloted to a type characterized by destruction of large areas entirely subcortical, especially in the region of the basal ganglia, the internal capsule and in the white matter in general.

We made an autopsy on such a case recently, in which there was softening of the anterior two-thirds of the white matter in the left hemisphere, the basal ganglia and the internal capsule. Cerebral hemorrhage was not in evidence. The cortex was not involved. Clinically there was rather rapid but not sudden onset of hemiplegia and aphasia without the loss of consciousness. Associated lesions, which may or may not have been of importance, were a chronic nephritis and mitral stenosis. Arteriosclerotic changes were entirely limited to the cerebral and renal vessels; in the latter the granulations of vascular origin were clearly distinguishable from those of nephritis. The aorta, the coronary and the splanchnic vessels were entirely free from atheroma; the vessels of the extremities were not examined. Hypertension in this case was doubtless due entirely to the nephritis, and had been, in spite of marked atheroma of the cerebral vessels, unable to produce apoplexy. Death had occurred ten days after the onset of hemiplegia and was preceded by coma of short duration, probably uremic.

In these cases the cortex is usually well preserved, as in our case, while the basal ganglia, the pons and various portions of the brain abounding in white matter, especially the internal capsule, are hard hit. There may be isolated areas of involvement but more often the process is widespread and attacks several neighboring areas of varying physiology. Essentially it is a patchy softening, occurring in the lower centers or their communications with the higher centers which are themselves free from change. Chronic subcortical encephalomalacia has been proposed as a suitable pathologic designation for this condition, though it fails to specify its arteriosclerotic etiology.

It will be noted that the clinical manifestations in our case were those of a focal process. So it is always, tho usually the process is slower in development, especially in the focal manifestations.

There may be intercurrent apoplectiform attacks.

It may be said that successive, usually slowly developing, large foci of destruction, topograghically at variance, superimposed upon mild types of arteriosclerosis of the cerebral vessels, are the diagnostic features. Owing to the large, often multiple areas destroyed by insufficient blood supply, mental deterioration is a marked symptom in many cases, if the destructive processes are survived for a sufficient time. It may reach a degree comparable to that of decerebrate animals.

APOPLEXY AND THROMBOSIS.

Apoplexy and thrombosis are forms of destructive lesions, occurring in arteriosclerosis. These constitute the average text-book description of cerebral arteriosclerosis. They are well described but strictly speaking should be regarded as accidents of cerebral arteriosclerosis rather than as the disease proper.

ARTERIOSCLEROSIS OF THE CORONARY ARTERIES.

Several years ago we saw a colleague who was suffering from substernal pain of excruciating severity, extending down both arms, coming in exaccerbations of one-half hour duration. He was forty-one, physically active, had had no serious illnesses except a retinal hemorrhage about one year before. His blood pressure was normal, and the palpable arteries presented nothing of interest. He declined to accept the diagnosis of angina pectoris on the grounds of relative youth and normal blood pressure. Three days later he died suddenly, having just a few moments previously reported to us that he was bound for home and bed because a very bad day had finally compelled him to accept the diagnosis. Autopsy revealed no changes whatever except extensive coronary atheromatosis and a few small patches about the openings of the intercostal vessels in the thoracic aorta. The brain could not be examined. Doubtless the retinal hemorrhage spoke for cerebral vessel changes.

Within the past month we made an autopsy for the coroner on the body of a robust man of forty-four who had been suffering about one year from "stomach trouble," manifested by epigastric pain in acute exaccerbations. Autopsy was negative except for the following characteristic findings: slight atheroma of the aorta just above the aortic ring; the arch and beginning thoracic aorta were smooth; lower thoracic and abdominal aorta showed very extensive atheroma with calcifications which had invaded the various splanchnic branches. The coronaries were the seat of extensive atheroma, with calcifications far advanced in the left artery in spite of a relatively normal arch. The descending or vertical branch of the left coronary artery was partially occluded by marked hypertrophy of the connective tissues of the media and calcification of the same. This finding is so frequent in this location that this particular vessel has been called the "artery of sudden death."

Tragic experiences similar to the two related are common to most medical men, largely because the patients have been regarded free from arteriosclerosis on a basis of normal visible arteries and blood pressure. Normal blood pressure, or even hypotension, plus fairly soft radial or temporal arteries, often lead to erroneous diagnostic exclusion of coronary sclerosis. However, in generalized arteriosclerosis, where the symptom-complex, angina pectoris, is supported by tortuous retinal or hardened radial vessels, this symptom is not so easily nor as often misinterpreted.

The pathology of coronary sclerosis is that of atheromatosis elsewhere. Changes are variable in degree and are usually more marked in the left coronary than in the right, and are most often death dealing in the descending branch of the same. The process may vary from a few atheromatous placques to extensive connective tissue hypertrophy, calcification and consequent occlusion or thrombosis. It is worthy of note that the changes causing death found in the opened arteries may be unbelievably scant; it is in the smaller branches that are not teased out that the fatal process is situated in such cases.

The suggestion of Allbutt that the pathologic basis of angina pactoris is located in the root of the aorta and not in the coronary vessels gains little support from the findings in the majority of cases, nor in most of ours. Just a few days ago, however, we made an autopsy on a man of about sixty who died suddenly while harrowing a field. There was marked atheroma of the aorta just above the ring in exactly the location described as typical by Allbutt. The coronaries were carefully dissected as far as possible and no changes whatever were found, the heart muscle was normal in every respect nor was aortic insufficiency present. The brain and its vessels were normal. No cause of death other than angina pectoris suggested itself.

and, so far as the coroner knew, he had never been sick before nor had the local physician ever seen the man professionally. The second case of coronary sclerosis we mentioned also showed some atheroma in the area described by Allbutt, but there were much more marked changes, namely, thrombotic occlusion in the left coronary artery which could much more reasonably be accepted as the cause of the anginal attacks and certainly as the cause of death.

Thrombosis in cases with extensive sclerosis, especially in the descending branch of the left coronary artery, is the usual finding in coroner's cases. Atheromatous placques of varying degree are often found as isolated vascular changes, both in cases where an anginal attack was the cause of death and those in which some non-vascular process was responsible. It is, however, surprising how little change may be present in the coronary arteries, where angina pectoris was the cause of death. A patch of atheroma in the coronary ostium or in the aorta overhanging the ostium are by no means rarely the only discoverable cause of the syndrome angina pectoris.

On the other hand, extensive changes in the coronary vessels sometimes lead to remarkable results. Within the past three years we made autopsies on two cadavers, in which extensive infarction of the heart muscle had occurred with rupture of the heart thru the necrosed area, death ensuing from hemopericardium and cardiac tamponade, all following thrombosis in coronary sclerosis. One patient had just left his physician's office, where he had sought relief for an anginal attack, the other had had numerous attacks, the last one, however, containing in spite of her usual dose of nitrites. Both of these cases were part of a generalized process with intense coronary localization.

The clinical manifestations are so generally well understood that it seems out of place to mention them here. Suffice it to say that various myocardial symptoms are produced.

Whether angina pectoris is due to coronary artery sclerosis or, as Allbutt maintains, to sclerotic changes in the aortic root is a controversial question, the merits of which cannot be discussed here.

SPLANCHNIC LOCALIZATION.

Splanchnic localization seems to be relatively rare except as a local accentuation of a generalized process. We saw only one case with anything approaching localization, and that was not diagnosed until autopsy. The process was an extensive atheroma of the abdominal aorta and its branches. There was relative freedom from change in other examined branches of the arterial tree. Clinically, there had been severe paroxysmal pain in the left side of the abdomen. It was most severe when the patient was lying down at night and often caused him to spend the night walking about for relief. Constipation, which was severe, became intractable after attacks. He died apparently of exhaustion.

Abdominal angina is written about much more than is warranted by the frequency of its occurrence, yet it is a diagnosic possibility in all cases of obscure abdominal pain that must not be forgotten.

RENAL ARTERIOSCLEROSIS.

The renal vascular area is a common seat for selective or especially intensive localization in arteriosclerosis. That this would occur in an organ so highly specialized in a circulatory way as is the kidney is not surprising. Its frequency, if one includes increased local intensivity in generalized sclerosis, is probably greater than that of any other type of peripheral localization.

Highly specialized organs often develop faults peculiar to themselves, and in the kidneys one of these is an inherent tendency to circulatory disturbances. Being end arteries, a slow process of infarction is common, by which considerable areas of renal tissue are lost and replaced by scar. Distribution is irregular and neighboring infarctions are likely to be of varying size and also of varying age. In fact some areas appear more vulnerable than others, notably the convex margin, probably because its arteries have pursued a longer course and are, therefore, more likely to be affected by arteriosclerotic changes. The two kidneys are usually approximately equally affected, tho it is not rare to see one much more shrunken than the other, and, when this is associated with inflammatory or nephritic granulations, the two types may be readily differentiated. We described one such case under cerebral arteriosclerosis.

Realizing that the renal chapter of vascular pathology is intimately related to the chapter on infectious processes in the kidney, we will dismiss this subject here, ere we diverge too far from the subject. Suffice it to say that renal arteriosclerosis, whether an isolated process or part of general vascular disease, is a true arteriosclerosis. That it is often associated with the end results of inflammatory processes is just why there is so much confusion associated with the various types of granular kidney described. It is to be remembered that the arteriosclerotic kidney is characteristic and recognizable without resource to the microscope, whether as an isolated process or when associated with the end results of infection.

ARTERIOSCLEROSIS IN THE EXTREMITIES.

There is at least one type of arteriosclerosis typical in the extremities, the so-called "Monckeberg's sclerosis." This was fully described by Monckeberg in 1903 in a paper "On Pure Media Calcification of the Arteries of the Extremities." It begins as an hypertrophy, with which occurs almost simultaneously hyalin degeneration of the muscle and medial stroma, to be followed very soon by calcium deposits, sometimes showing bone structure. It occurs, like other forms, chiefly in the aged but especially in aged workers. It is this form that is regarded as the typical result of wear and tear. It may coexist with atheroma. In Monckeberg's cases, twelve of his fifty-five showed intimal changes, but usually they have a smooth, in fact unusually delicate, intimal layer. The lumen is widened rather than narrowed, probably expressive of the work hypertrophy nature of the disease. Allbutt suggests the term "arterionecrosis" for this type, since it is really a destructive lesion. He is, however, somewhat in doubt, since this may be the guise assumed by ordinary arteriosclerosis, when it occurs in vessels in which the media is essentially a layer of muscle, and where the course of the artery is beset with hindrances and partial obstructions to circulation incident to tortuosity, bony prominences and contractions of overlying muscles. It occurs to us that the vasa vasorum may, during the process of hypertrophy of the media, fail to keep pace with the growth of the artery, thus leading to inadequate blood supply and consequent degenerative changes in the layer. The process begins in the periphery and progresses toward the heart, and, when it coexists with atheroma of the central type, often meets with and fuses with that process in arteries the size of the iliacs.

Other forms of arterial degeneration occur in the extremities but do not localize here to the same degree noted in various other organs. In them gangrenous processes are so common that it may be said that they occur in the extremities only and in them almost entirely in the lower. It is generally assumed that this greater destructive tendency is due to the greater changes in the arteries, because the lower extremity shows in general less adaptability to the vicissitudes of circulation. Furthermore, it is generally assumed that blood pressure is greater in the legs than in the arms.

When ordinary atheromatosis is intensely localized in the extremities, we sometimes see a classical syndrome in evidence, namely intermittent claudication, a symptom so well understood that it need but be mentioned in passing. That it may be overlooked by well trained men is shown by an oversight of this type by a colleague of unusual ability. We were asked to study a set of x-ray plates of feet with him. They were those of a man suffering from just such lameness. His intensive search was directed so definitely upon the bones in his search for a lesion there that he had entirely overlooked the fact that both the posterior tibial and dorsalis pedis arteries were almost as clearly visible as the bones themselves.

RECAPITULATION.

(1) Arteriosclerosis may occur as a diffuse process, but it is important to recognize distinctly localized types and those in which there is a regional accentuation in the generalized type.

(2) These facts are of great diagnostic importance.

(3) Most of these special types are recognized by characteristic groups of symptoms.

(4) Cerebral arteriosclerosis is not adequately described as such in standard text books. Most of them describe cerebral apoplexy and thrombosis as tho they were the usual manifestations of the disease.

(5) The causes of regional arteriosclerosis are not well understood.

(a) Local differences in the anatomy and physiology seem to be important causes determining where, in a given case, the heaviest localization will occur.

(b) Poisons with selective regional action may exist. Only one is known, epinephrin.

(c) Local stress is the most important localizing agent.

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EDITORIAL

TREATMENT OF PNEUMONIA.

This subject is suggested by recent articles and editorials, and by its seasonable appropriateness. Treatment in pneumonia should not be governed by the character of its pathology, notwithstanding a frequent contrary practice. Frank lobar pneumonia is rarely met with at present. Gone are the classic signs by which those who run may read—the chill, the stitch in the side, flushed face, expiratory grunt, dilated alae nasi, and even the short, frequent cough. The onset of lobular pneumonia is often insiduous and occult, and only physical examination discovers it to our surprise. The open air treatment of pneumonia was a great advance and the writer is firmly convinced that it is as applicable to lobular as to the lobar type. In the Army the mortality was a third less in bronchopneumonia patients in tents as compared to wards. It is probable that the stimulating effect of cold air reflexly excites the vital nerve centres, since ventilation we now know consists in a low temperature rather than in increasing the supply of oxygen, present in sufficient amount in any ordinary living room. Patients with pneumonia often improve wonderfully in a few hours when removed from a ward to the open air, even in cold weather. Consersely, crowding in wards has a most malign effect on the mortality.

The modern method of serum treatment is only applicable, where laboratory facilities are at hand and in a small percentage of lobar pneumonias. One readily appreciates the difficulties of evaluating any specific treatment of pneumonia at different periods and in different places, because of the inherent difference in virulence even in the same locality at different times. Thus one may have a ward full of pneumonia patients with a mortality of 35 per cent, as in the recent epidemic, and yet a few weeks later the mortality in the same ward and with the same treatment may not exceed five per cent.

During the influenza epidemic every kind of treatment of pneumonia was tried with no enlightening result, except to emphasize even more irrefutably that two drugs stand out as the eternal therapeutic verities-morphine and digitalis. Formerly leading clinicians taught that digitalis should be reserved till signs of heart failure were evident. Now overwhelming experience has taught us that every patient should be thoroly digitalized at the outset lest, without warning, sudden heart failure occur and an inexcusable and preventable mortality. Fortunately also the older practice of giving absurdly inadequate doses of digitalis has passed and the method of Eggleston has been generally adopted. Morphine should usually be given as a routine in quarter grain doses under the skin from the onset, and should be repeated as often as necessary to keep the patient quiet and comfortable. It is a divine drug and we have never seen any but the most beneficent results from its use in all kinds of patients and conditions. The employment of oxygen in dyspnea and alkalies in acidosis have value in a limited number of patients. We have yet to be convinced of the worth of serum from convalescent pneumonia patients, altho not without experience in its use.

Too much treatment is worse than too little in pneumonia. Especially have we been impressed by the amazing success in the laissez faire treatment of pneumonia in a charity hospital over the period of many years, where the human material represents the direst drugs of society. Only the essentials herein noted have been employed. And it is the essentials that count. Our lives are laboriously spent catching them as best we can from the sea of experience and literature. It often seems as if the mission of literature, by its very inchoate vastness, were to cloak truth rather than to unveil it. So that, after all has been said and written, we may confidently deduce from the enormous clinical experience of the past that the essentials of treatment in pneumonia consist in a therapeutic tetrad, namely, nursing, open air, digitalis and morphine. K. W.

THE BIOCHEMISTRY OF ECLAMPSIA.

In a recent article* there appears a rather exhaustive review of the latest work on biochemistry in eclampsia, and this is of special interest because it deals with eclampsia from an entirely different angle than does the article by Messaglia which was commented upon editorially in the July issue of NORTHWEST MEDICINE. The workers in the field of biochemistry have summarized their work on eclampsia and the allied toxemias of pregnancy, under three main divisions: (1) acidosis, (2) renal and hepatic functions, (3) primary thrombosis in various organs. So far as acidosis is concerned, observations have shown that slight acidosis is present in normal pregnant women, and that there is not a sufficient reduction in the CO_2 combining power of the plasma of patients suffering from eclampsia and the other toxemias of pregnancy to justify us in considering acidosis as the underlying cause.

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*Medical Science Abstracts and Reviews, September, 1921.

As for renal and hepatic functions. It is probable that blood urea is abnormally low during normal pregnancy, but that the total non-protein nitrogen is not diminished, while in eclampsia the urea nitrogen is increased without a definite increase in uric acid and creatinin and, furthermore, it has been found that in eclampsia the increase in non-protein nitrogen does not approach that seen in acute or chronic renal disease unassociated with pregnancy, and this should serve as a valuable differential point in distinguishing a true eclampsia from a uremia complicating pregnancy. Another valuable differential test is that which estimates the diastase content of the urine, the diastase being greatly increased in the toxemias of pregnancy but not in chronic nephritis complicating pregnancy. The methods for estimating the functional capacity of the liver are still unsatisfactory.

That the underlying cause of eclampsia is thrombus formation with an increase of fibrinogen and fibrin ferment in the blood is very unlikely, because in infections we may have just as great an increase of these elements as in eclampsia but without similar symptoms. While the biochemists have not yet solved the problem of eclampsia, still their contributions are of definite value in that they have excluded some of our older theories of the cause of eclampsia, and let us hope that they may finally succeed in establishing the prophylactic and curative treatment of eclampsia upon a second and rational basis. R. N. H.

ARTERIOSCLEROSIS.

It has been the policy of this journal to avoid publishing, so far as possible, papers of extreme length. This rule has been violated in this month's issue and the space for reading matter is devoted to two papers, dealing with various phases of arteriosclerosis. We believe this to be a proper procedure, because the subject of arteriosclerosis is thoroly understood by so few average practitioners. The recognition of this condition is commonly determined by the taking of blood pressure and palpation of the radial, temporal and other arteries. As explained in these papers, these are rarely sufficient indications of this profound constitutional condition and, if depended upon alone for diagnosis, may lead one far astray in the determination of the facts in a given case. We commend the careful perusal of these papers to the readers of this journal.

NEW ADVERTISERS.

Attention is called to new advertisements which appear for the first time in this issue and that of last month, which are reliable and trustworthy. The well-known Abbott Laboratories (page 19) present some of its standard products which have stood the test of trial. The Radium Company of Colorado (page 14) offers an extended announcement of its radium products. Scott and Bowne (page 19), who have been known for many years as producers of cod liver oil preparations, present an announcement of some of their latest products. Drs. Thompson and Dawson, of Seattle, announce their radium and x-ray laboratory (page 329). The Tacoma Radium Society (page 2) announces the opening of its offices.Sanborn Company, of Boston (page (4), present a practical polygraph for the use of the general practitioner. The Physicians Casualty Association, of Omaha, (page 10), offers its record of past achievements.

MEDICAL NOTES

OREGON

Efficient Hospital Management. Dr. George B. Story, formerly of Portland, has been commanding officer of Cushman Hospital,at Tacoma, during the last year with the rank of Major. Under his supervision the old Indian School has become an efficient hospital during that period.

Addition to Hospital. The second wing of the Hahnemann Hospital in Portland will be started in the near future. It is reported that $24,000 has been received for the installation of the childrens' ward. Preliminary plans for the hospital wing have been made.

Conflict in Office. In July the county court appointed Dr. W. E. Kempstead as health officer at Oregon City without removing the former officer, Dr. O. A. Welsh, whom the State Board of Health ruled could not be removed without a hearing. The doctor appears to be performing the duties of the office without receiving compensation, while the ultimate outcome hangs in the balance.

Dr. V. C. Birney, of Portland, who left the army with the rank of major after several years of service, has been ill for several months. He has returned to his former home in Green, Ia., where he expects to remain.

Elected President. Dr. Earl Smith, coroner for Multnomah County, was last month elected president of the Oregon State Coroners Association.

Dr. G. B. Garrison, formerly of St. Louis, has located for practice at Pendleton.

Dr. I. R. Fox, of Portland, recently interne at Emanuel Hospital, has located for practice at Eugene.

Dr. G. R. Vehrs, who formerly practiced in Elgin, has located at La Grande.

WASHINGTON

New Medical Society Organized. Whitman County Medical Society, of Washington, and the Northern Idaho Medical Society have been consolidated under the name of the Inland Empire Medical Society. It will include the seventy physicians of Whitman County and North Idaho. Dr. E. L. White, Lewiston, Ida., was elected president and Dr. M. J. Beistel, of Pullman, was secretary. In order to affiliate with the state association the Whitman County society will exist as a separate unit but will be inactive as far as meetings are concerned.

The Washington Department of Health, created by the administrative code, differs somewhat from the old State Board of Health. It consists of five physicians, one of whom is the Director of Health, thus differing from the old board of five members which appointed the Commissioner of Health. Now the Director of Health is a member of the administrative board and under the supervision of the administration. A new duty of this department is compulsory visits and investigations of state hospitals and custodial schools for the purpose of protecting the health of the inmates.

The Contract Question in Spokane. The controversy over contract practice in the Spokane County Society has been presented with changing phases. Of the 135 members about 20 possess contracts. The society voted to exclude the members holding contracts. The House of Delegates, of the State Association, directed the Spokane society to modify this ruling. After conflicting predictions of future actions, the society voted to comply with the State Association's stand and the and the contract practice agitation is ended.

New Hospital Organized. The Newport Community Hospital Association was formed last month for the erection of an up-to-date hospital to be established in that city. There are several large lumber companies and other industries which are backing the hospital project.

New Hospital Opened. The Snoqualmie Falls Lumber Company opened its new hospital last month. The company is a cooperative concern under the management of a board of directors, elected by the employees. Dr. R. T. Burke is the chief surgeon.

Hospital Moved.. The Dentention Hospital, maintained by the Seattle City Health Department, for women afflicted with venereal diseases, has been moved from the city jail building to the King County jail building, where more space is available. Facilities have been installed for the care of twenty-five patients. Their removal will make available additional space for the City Hospital.

New Hospital Proposed. Physicians of Puyallup, Sumner and Orting have launched a campaign to build a twenty bed hospital at Puyallup. The commercial club of that city is backing the proposition. It is proposed to expend $50,000 on the institution.

Another New Hospital Planned. Last month a campaign was inaugurated to obtain funds to build a hospital at Sedro-Woolley. It is backed by the physicians of that city together with the leading business men. Definite plans will be announced later.

Whitman County Medical Society held a meeting at Pullman, Oct. 3, attended by thirty physicians. Papers were read by G. S. Peterkin, of Seattle; E. H. Current, of Spokane; F. R. Fursey, of Spokane; G. A. Dowling, of Seattle; E. S. Jennings, of Spokane; E. J. Barnett, of Spokane and J. E. Else, of Portland.

Snohomish County Medical Society held a meeting at Everett, Oct. 5, attended by twenty physicians. Papers were read by Drs. A. C. Brown, of Stanwood, and G. A. Bains, of Snohomish.

Infantile Paralysis has been reported from practically every county in the state but is now declining, according to reports from the Department of Health. Mild epidemics have occurred in Yakima and Walla Walla counties.

Change of Officials. Major Z. L. Henry, medical officer at Ft. Stevens has been transferred to Ft. George Wright, whose medical officer, Major Franklin, has been transferred to Ft. Stevens.

Appointed to U. S. Public Health Service. Dr. P. P. Crimmons, of Bellingham, has been appointed surgeon in the U. S. Public Health Service, and has left for Washington, D. C.

Dr. W. M. Conway, for several years Assistant Superintendent of the Eastern Hospital for the Insane, at Medical Lake, has located for practice at Cheney.

Dr. L. R. Radner, who has recently practiced in Seattle, has located at Wenatchee.

Dr. William Ely, who has practiced for many years in Walla Walla, has moved to Langley where he proposes to build a sanatorium.

Dr. F. M. Froyd, recently of the Northern Pacific Hospital at Tacoma, has moved to Castle Rock,

Dr. F. L. Carr, of Montesano, who has practiced in that city for thirty years, has bought an interest in the Hoquiam General Hospital and removed to the latter city for practice.

Dr. M. Reich, of Entiat, has moved to Wilson Creek, where he will continue practice.

Medical Weddings. Dr. Burton A. Brown, of the staff of the Seattle City Hospital, was married Oct. 10 to Miss Adeline Perry, recently Instructor of nurses at the University Hospital, Iowa City, Ia. She was formerly superintendent of the City Hospital.

Dr. L. A. De Merchant, of Seattle, was married Oct. 15, to Miss Cora J. Phillips, of Enumclaw. He will serve as surgeon to the Skagit power jroject.

Dr. J. J. O'Leary, of Olympia, was married, Oct. 12, to Miss Mary L. Hall, of Kent.

IDAHO

The State Medical Association held a very successful meeting at Twin Falls, Oct. 7-8. The attendance was large and many interesting papers were presented. The Idaho League for the Conservation of Public Health was organized, with Dr. L. R. McCalla, of Boise, President and Dr. E. E. Laubaugh, of Boise, Secretary.

State Medical Examinations. The regular meeting for state license examination was held at Boise, Oct. 4. Twenty applicants for license appeared.

Dr. A. A. Otteraaen, formerly of the Deaconess Hospital of Spokane has located for practice at Troy.

Dr. L. B. Stockslager, who has practiced for some years at Wallace, has moved to Lewiston.

OBITUARIES.

Dr. David E. Ruff died at Junction City, Ore., Oct. 13, at 81 years of age. He was born at Lexington, Va., in 1840. After graduating from Washington College at Lexington and Washington and Lee University, he received his M. D. degree at Tulane University, New Orleans, in 1867. He served thru the civil war in the confederate army. In 1885 he moved to Junction City, Ore. For the following twelve years he was a member of the city council. For eight years he was city recorder and for several years he served on the school board. He was known and respected in a large circle of friends and was recognized as a very useful citizen.

Dr. Isaac B. Wilson, of La Pine, Ore., died at the Bend Hospital. Oct. 9. after a week's illness. He was 33 years of age. He came to Central Oregon about ten years ago and lived in a cabin in the woods until the beginning of the war, when he went into army service. He located for practice at La Pine about eight months ago.

Dr. J. P. Gresham, of Portland, Ore., died Oct. 12 as the result of injuries received in an automobile accident Sept. 7. At the time he sustained a fractured skull and other injuries. The immediate cause of death was pneumonia. He was born in Landersburg, Pa. He graduated from the University of Oregon Medical School in 1919 and started to practice at La Grande. In 1917 he enlisted in the army. Following his discharge he located for practice in Portland.

Dr. John F. Harris, of La Cross, Wash., died Oct. 7, at 69 years of age. He had resided there since 1917 and prior to that had lived for several years at Hartline.

PACIFIC NORTHWEST SURGEONS' GOLF ASSOCIATION.

The Annual Pacific Northwest Surgeons' Golf Tournament was played on the links of the Tacoma Country and Golf Club, Oct. 7. While there were only thirty-five players entered in the tournament, they made up in enthusiasm for what they lacked in numbers, and all agreed that the tournament was a success from every standpoint. Players were entered from Bellingham, Seattle, Tacoma, Yakima and Portland. The Yakima team, composed of Drs. E. S. West, C. J. Lynch, J. P. Louden and J. A. Bline, defeated the Tacoma team, composed of Drs. A. G. Nace, E. W. Janes, E. R. Perry and R. G. Schaeffer in the contest for the silver cup, presented by Paul T. Shaw of Tacoma. Dr. E. S. West, of Yakima, made the best gross score of the day, turning in an 86 medal score. The visiting players were the guests of the Tacoma surgeons at a dinner at the Tacoma Country Club, and after dinner an organization was perfected for the purpose of perpetuating the idea and holding a tournament every year.

Officers of the Association were elected as follows: Dr. E. S. West, Yakima, President; Dr. W. A. Monroe, Tacoma, vice-president; Dr. J. A. Bline, Yakima, secretary-treasurer. It was voted to hold the tournament in 1922 on the links of the Yakima Country and Golf Club, at a time to be selected by the officers. In all probability the next tournament will be held a day or two prior to the medical meeting which is to be held in Spokane. The Shaw cup is to be played for annually, and the names of the winning team and their city will be engraved upon the cup each year. Any city winning the cup three years in succession will become the permanent owner of same. The Yakima players showed considerable speed and, if able to win away from home, it is apparent that it will take a fast team to recover the cup from them on their home links next year.

REPORTS OF SOCIETY MEETINGS

WASHINGTON STATE MEDICAL ASSOCIATION.

MINUTES OF THE THIRTY-SECOND ANNUAL SESSION OF THE WASHINGTON STATE MEDICAL ASSOCIATION, SEATTLE, WASHINGTON, SEPT. 1-2, 1921.

The thirty-second annual session of Washington State Medical Association was convened at the New Washington Hotel, Seattle, Wash., Sept. 1, 1921.

House of Delegates.

FIRST SESSION.

The first meeting of the House of Delegates was called to order by the President, Dr. A. E. Burns, at 9 A. M. On calling the roll a quorum was found present, the following delegates answering to their names:

A. E. Burns, Seattle
W. D. Read, Tacoma.
H. E. Cleveland, Burlington.
C. H. Thomson, Seattle
J. H. O'Shea, Spokane
R. J. O'Shea, Seattle.
H. D. Brown, Mt. Vernon
D. A. Nicholson, Seattle
E. C. Wheeler, Tacoma
S. S. Oppenheimer, Spokane
Elmer Hill, Walla Walla
D. E. McGillivray, Port Angeles
R. T. Congdon, Wenatchee
W. H. Taylor, Port Angeles
A. J. McIntyre, Hoquiam
D. H. Palmer, Seattle
I. A. Parry, Seattle
O. F. Lamson, Seattle
C. E. Gutherie, Seattle
G. W. Swift, Seattle
A. S. Loe, Seattle
J. E. Bittner, Sprague
F. W. Anderrson, South Bend
H. G. Willard, Tacoma
S. M. McLean, Tacoma
C. R. McCreery, Tacoma
W. F. West, Everett
J. D. Windell, Spokane
N. J. Redpath, Olympia
J. E. Pruecell, St. Johns
W. A. Pratt, Walla Walla
Rush Banks, Centralia
E. C. Hackett, Kelso

The Secretary-treasurer stated that it was customary to have the books examined by a certified public accountant on January 1 and July 1 of each year and that there were two audits in the past year, as follows:

Audit of fiscal year ending December 31, 1920, see report to Board of Trustees.

Financial Report for six months ending June 30, 1921. (L. E. Smith, Auditor.)

EXHIBIT "A," MEDICAL ASSOCIATION FUND.

Balance January 1, 1921 ....$2,624.70

RECEIPTS

From Membership dues, six months ending 6-30-21.

	Members	
Chelan County society	16	64.00
Clallam	5	20.00
Clarke	16	64.00
Grays Harbor	26	103.00
King	351	1,404.00
Lewis	17	68.00
Pacific	2	7.00
Pierce	83	332.00
Skagit	16	64.00
Snohomish	31	123.00
Spokane	125	497.00
Thurston-mason	1	4.00
Walla Walla	26	104.00
Whatcom	32	128.00
Whitman	24	96.00
	771	3078.00

Half of Interest Received, (schedule I)	121.94
	5824 64

DISBURSEMENTS

Refund, Dr. W. B. Penny, Overpaid	3.00	
Metropolitan Press. Co., Journals	40.00	
Northwest Med. Jour., Journ. Subs.	676.50	
Secy.-treas. Postage	30.00	
Half of General Expense, (Schedule II)	574.72	
		1324.22
Balance to Credit this Fund		4500.42

EXHIBIT "B," LEGAL DEFENSE FUND.

Half of Interest Received (Schedule I) 121.93
Balance January 1, 1921 ....6912.18

RECEIPTS

Subscriptions from the following Counties for the six months ending June 30, 1921.

	Members	
Benton	1	10.00
Chelan	2	20.00
Clarke	3	30.00
Grays Harbor	5	50.00
King	79	790.00
Kittitas	2	20 00
Kitsap	2	20.00
Klickitat	1	10.00
Lewis	2	20.00
Lincoln	2	20.00
Pierce	13	130.00
Snohomish	3	30.00
Spokane	32	320.00
Stevens	5	50.00
Walla Walla	7	70.00
Wahkiakum	1	10.00
Whatcom	10	100.00
Whitman	1	10.00
Yakima	4	40.00
	175	1750.00
		8784.11

GENERAL DISBURSEMENTS

Walter S. Fulton, Legal services	350.00	
Walter S. Fulton, Court Costs	8.50	
Chas. O. Bates, Legal services	572.25	
Chas. O. Bates, Expenses	251.32	
Edward J. Cannon, Legal Services	100.00	
Edward J. Cannon, Expenses	1 50	
H. T. Buckner	33.00	
Aetna Life Ins. Co.	13.01	
H. Eugene Allen, Expert Witness	25.00	
H. D. Dudley, Expert Witness	25.00	
Dr. Bourns & Mowers, Expert Witness	25.00	
C. H. Thomson, Expert Witness	25.00	
Half of Genl. Expense (Schedule II)	574.71	
		2004.29
Balance to credit this Fund		6779.82

EXHIBIT "C," RECAPITULATION.

Cash on hand January 1, 1921 ....9536 88

Gross Receipts for first six monts of 1921.

Membership dues	3078.00
Legal Defense Subscriptions	1750.00
Interest	243.87
	5071.87

Disbursements

Association Expenses	1324.22		
Legal Expenses	2004.29	3328.51	1743.36
Total Cash on hand June 30, 1921			11280 24

Cash made up as follows:

Liberty Bonds (par value (5000.00)	4912.20
Certificates of Deposit (Seattle Natl.)	1500.00
Seattle National Bank (Open Acc't)	4868.04
	11280.24

SCHEDULE "1"

RECEIPTS

Interest on Certificates of Deposit	105.52
Interest on Liberty Bonds	138.35

SCHEDULE "2"

GENERAL DISBURSEMENTS

Lowman & Hanford, Office supplies	6.05
Dr. Marshall, Traveling Expenses	30.00
A. M. A., Directory	12.00
Barney-Truckey, Lettering Office door	5.53
Metropolitan Bldg. Co., Office rent	80.00
Metropolitan Bldg. Co., Remodeling office	98.00
Louis E. Smith, Audit 1920 Report	150.00
Miss Cooper, 6 months salary	750.00
Miss Cooper, Telegrams	1.35
Frederick & Nelson, Rug for office	16.50
	1149.43

Dr. D. A. Nicholson moved that the report be accepted. Motion seconded and carried.

The secretary then presented the findings of the Judicial Council of the American Medical Association in answer to the appeal of the Spokane County Medical Association.

535 North Dearborn Street,
Chicago,
June 21, 1921.

Dr. C. H. Thomson, Secretary,
Washington State Medical Association,
508 Cobb Building, Seattle, Washington.

Dear Doctor Thomson:

As the Secretary of the Judical Council, I submit herewith the findings of that body in the matter of the appeal of the Spokane County, Washington, Medical Society. The Judicial Council took action in this matter as follows:

The Judicial Council recognizes the right of the Spokane County Medical Society to adopt By-Laws governing the qualifications of its members, providing they do not conflict with the By-Laws of the Washington State Medical Association, or the American Medical Association, or with the principles of medical ethics of the American Medical Association.

Dr. John O'Shea and Dr. Frank Rose were within their rights when they appealed to the State Association before specific charges had been made against them on the well-recognized principle of declaratory law or preventive justice.

The Washington State Medical Association had jurisdiction in the appeal of Drs. O'Shea and Rose under Article 9, Section 1, of its Constitution and By-Laws, which states "The Board of Trustees shall be the Board of Censors of this Association.. ....The Board of Trustees, except during sessions of the House of Delegates, shall have full power to act on all matters concerning the business of the Association."

The Judicial Council is of the opinion that the Washington State Medical Association exceeded its powers when it peremptorily ordered the Spokane County Medical Society to rescind a By-Law which it had properly adopted, without specifically showing wherein the County Society had exceeded its rights in passing the said By-Law, or wherein the By-Law which was ordered rescinded was in conflict with the Constitution and By-Laws of the Washington State Medical Association, the American Medical Association, or the principles of medical ethics of the American Medical Association.

The Judicial Council, therefore, hereby overrules the action of the Washington State Medical Association.

The report of this action was made to the House of Delegates at its meeting held in Boston, June 6, 1921, and is published in the journal of the Association for June 11, 1921, page 1684.

Very truly yours,
(Signed) ALEXANDER R. CRAIG.

The report of the Committee on Revision of Constitution and by-laws was then presented by the Chairman, Dr. D. A. Nicholson. Report as follows:

August, 13, 1921.

Dr. Arthur E. Burns, President,
Washington State Medical Society,
Seattle, Washington.

Dear Doctor:

The Committee appointed by you for the purpose of revising the By-Laws and Constitution of the Washington State Medical Society also of the county societies of the State of Washington so that there would be no conflict between the County Societies, the Washington State Medical Association and the American Medical Association, as was ordered by a resolution at the last annual meeting of the Washington State Medical Association, desires to report that they found no conflict between the By-Laws of our state society and the American Medical Association but they did find a marked difference in arrangement of the same due to the fact that our State Medical Association has no constitution. The Articles of Incorporation being as its by-laws.

The Committee found that Article 5, Section 3, of our state society fails to state what vote shall be required to censor or suspend a member. Most of the county societies provide for a two-thirds vote in order to censor or suspend a member. We would suggest that this clause be added.

Article 6, Section 1, Division A, at present provides as members of the House of Delegates, one delegate each from the Board of Health and from the State Board of Examiners. Under the new state code adopted at the last meeting of the Legislature these bodies were practically placed in the hands of laymen, therefore we suggest that the delegates from the State Board of Health and the State Examiners Board be dropped. This would also hold true for Article 6, Section 2.

There are no other changes which we would suggest at present unless the Articles of Incorporation were rewritten so as to provide a constitution and By-Laws as outlined in the model, but this we do not recommend.

When we examined the Constitutions of the County Societies we found that it would be impossible for the committee to revise them as many had not been revised for years and local conditions would make it impossible for us to make the required changes; therefore we sent to each county society a model constitution, as furnished us by the American Medical Association, and requested that each society revise its own constitution and by-laws to meet local needs yet not to conflict with the model furnished them.

The result of this has been that Thurston-Mason, Pacific, Yakima, and Whatcom Counties have adopted the model constitution. Pierce, Clallam, Walla Walla, Chelan and King Counties have revised their constitutions. Snohomish and Skagit are revising theirs. Cowiltz, Lewis, Lincoln, Whitman and Grays Harbor have not notified us of their actions since the model was sent to them. Stevens county has never answered the communication sent them, Spokane County sent a copy of their constitution and notified us that they desired to make no changes in it for the present.

You are all familiar with the By-Law adopted by the Spokane County Medical Society which was probably the cause of the appointment of this committee. King County had a by-law which reads as follows: "Any member of this society who shall continue to, or hereafter agree to contract to, be employed by a commercial hospital association, shall stand suspended from the society during the period of his connection with such association." (By Commercial Hospital Association is meant a company, corporation or organization composed of laymen who own a majority of its stock and have a controlling interest, the object of which is to reap a profit from the services of a physician employed by or associated with them, to attend the injured workmen. Under the present Medical Aid Law of the State of Washington).

Clallam County in revising its constitution has added this same by-law.

The question now arises as to what should be the attitude of the committee on the question of contract practice. We felt that last year the delegates and trustees of the state society felt that legitimate contract work should not be a bar to membership in the State or the A. M. A. and that they further felt that the principles as set down by the A. M. A. and the State should govern in the county societies, so that a man who was eligible in one county should be equally eligible in another county.

Now we are told that the Judiciary Committee of the American Medical Association has ruled in the "Spokane County vs. Washington State" that the state society has not shown wherein the By-Law related to contract work, of the Spokane County Society, conflicts with the constitution of the Washington State or the American Medical Association. If this is to be our guide it would be necessary for this committee to create by-laws which would meet all possible conditions in order that we might be able to say to any county society in the future, that any by-law which they wish to insert conflicted with the State Constitution and By-Laws.

We do feel that such should be the general principles on which cooperation between the County, State and American Medical Association should be conducted. We have a code of ethics to which we all subscribe, which has set down certain principles that to our mind differs from the ruling of the Judiciary Committee. We feel that it would be presumption on the part of this committee to outline the policy to be followed by the Counties and State Society on the question of contract work. This will probably hold equally true as to the question of conflicts on other subjects if the higher body is to adhere strictly to a legal determination of our written Constitution and By-Laws.

We therefore suggest that this committee be discharged as having no further work to do, or that the Board of Trustees and the House of Delegates instruct the committee as to the policy they shall pursue, or that a new committee shall be appointed to determine this point.

Respectfully submitted,
(Signed) D. A. Nicholson
W. A. Read
H. E. Cleveland
Homer D. Dudley
G. A. Dowling

On motion, the report was accepted and the committee discharged.

The secretary-treasurer presented the Constitution and By-Laws with changes to correspond with the various motions made since the last By-Laws was adopted.

In Article 4 on component societies the following new section was proposed:

Section 4, The constitution and by-laws of all component societies shall at all times conform to these By-Laws and any component society desiring to adopt an amendment to its constitution or by-laws, which materially alters its policy or regulation, shall submit the same for the approval of the Board of Trustees, subject to final action of the House of Delegates.

After lengthy discussion upon this section, it was formally adopted.

It was proposed to amend Article 2, Section 5 on membership to read a two-thirds instead of three-fourths affirmative vote. It was so ordered.

Dr. Palmer took exception to the dropping of the president-elect, and served notice that he intended to offer a motion to restore that office.

Dr. F. A. Bird, Chief Medical Advisor to the Department of Labor and Industries, presented and discussed the following proposed fee schedule to be used in connection with State cases:

Fee Schedule—Industrial Insurance.

AMPUTATIONS.

Ankle joint	$ 50.00
Arm, forearm or hand	50.00
Elbow joint	50.00
Finger or toe	20.00
Foot	60.00
Hip	125.00
Knee joint	60.00
Leg	60.00
Shoulder joint	75.00
Thigh	70.00
Wrist joint	50.00

50% for Additional Amputations.

FRACTURES.

Carpalbones (one or more)	$ 20.00
Clavicle	45.00
Coccyx	20.00
Compound fractures (not infected)	25% plus
Elevation depressed	
Fracture of skull	50.00
Femur	100.00
Fibula	25.00
Finger	20.00
Forearm-colles	40.00
Forearm-one bone	35.00
Forearm-both bones	60.00
Jaw	25.00
Lower leg-both bones, including Pott's	75.00
Lachrymal bone	5.00
Malar	10.00

Metacarpals (one or more)	20.00
Metatarsals (one or more)	20.00
Nasal	10 00
Operation for wiring of bones or plating	25% plus
Os calcis	25.00
Patella	25.00
Pelvis	70.00
Pubes, Ilium, Ischii, without displacement	10.00
Ribs, one or more	10.00
Sacrum	15 00
Scapula	35.00
Spine	50.00
Sternum	10.00
Tarsals, one or more	35.00
Tibia	40.00
Toe	15.00
Upper arm	75.00

50% additional fractures.

DISLOCATIONS.

Ankle	$ 25.00
Clavicle	25.00
Elbow	25.00
Finger or toe	5.00
Hip	45.00
Jaw	10 00
Knee	25.00
Ribs, one or more	10.00
Shoulder, primary	25.00
Shoulder, subsequent	10.00
Wrist	15.00

EYE FEES.

Enucleation of eye	$ 50.00
Extraction of traumatic cataract	50.00
Needling, one or more operations, if successful	50.00
(Otherwise, extraction of cataract fee will prevail).	
Removal of foreign body, intra-ocular, when successful	50 00
(Otherwise, if enucleation is done, one fee)	
Must have consultation before using giant magnet; also, must have consultation before enucleating eye that has any sight in it.	
Iridectomy, including subsequent treatment	50.00
Removal of foreign body in the cornea at office, including anesthetic	3.00
Treatments in office when not covered by flat fee	2.00
Submucous resection	50.00

DENTISTRY.

Extraction, first tooth	$ 2.00
Extraction, each additional tooth	1.00
up to $10.00 for complete removal of all teeth.	
The above fees include the administration of local anesthetic.	
Removal of nerve and filling canals:	
a. Anterior teeth	3.00
b. Posterior teeth	5.00
Gold fillings (cast or malleted):	
a. Mesio-incisal and distoincisal cavities	7.50
b. Mesiopocclusal and disto-occlusal cavities	10.00
Abutments, shell crown	10.00
Abutments, inlay	12.50
Abutments, porcelain 20th century	10.00
Dummy teeth	10.00
Plates, upper or lower	25.00
Plates, upper and lower	50.00
Wiring for fracture, including after treatment	10.00
Vulcanite splint for edentulous case, including after treatment	50.00

X-RAY PICTURES.

Hand, wrist, forearm, elbow, ankle, leg, foot (2 views)	5.00
Stereos additional	2.50
Shoulder, knee, hip joint, femur (2 views)6	7.50
Stereos additional	2 50
Head, vertebra, pelvis	10.00
Chest, (1 view)	7.50
Chest, stereo	12.50
Stereos, additional	2.50
Clavicle (if more than one plate is necessary	7.50
Scapula	7.50
Stomach study, including screen examination and plates	15.00
Intestinal study and screen examination and plates	10.00
Kidney	10.00

Localization of foreign body $5 00 extra.

Dental:

One film	$ 1.00
Subsequent films	.50
Complete set, ten films	7.50
Inferior or superior maxillary	5.00
If more than one plate is necessary	7.50

Subsequent pictures, plate to be sent to department, same as above.

HOSPITAL RATES.

Private room, per week	$ 25.00
Ward, per week	18.00
Special nurse, per day	5.00
Board of special nurse, per day, not to exceed	1 50
Surgery, use of, major operation	10.00
Surgery, use of, minor operation	5.00

MISCELLANEOUS FEES.

Mileage, one way, per mile, beyond city limits	.75
Night calls between 9 P. M. and 7 A. M.	4.50
Office or hospital visits, first calls	3.00
Subsequent visits, when not covered by a flat fee	2 00
Home visits, first fee	3.00
Subsequent visits, when not covered by a flat fee	2.50
Minor operation, repair of small wound, including suturing	5.00
Abscess, incision	5.00
Treatment for cellulitis, per dressing	2.00
Maximum for first two weeks	35.00
Subsequent treatment, per week	7.00
Assisting at operation, major	10.00
Assisting at operation, minor	5.00
Anesthetic, administration, major	10.00
Anesthetic, administration, minor	5.00
Anesthetic, local injected subcutaneously	3.00
Consultation	5.00
Complete physical examination and report by other than attending physician	5.00
Laminectomy, special operation	100.00
Paracentesis, thoracic or pericardii, special operation	15.00
Introducing catheter	2.00
Complete ruptured urethra with open operation	75.00
Operation requiring repair of abdominal viscera and subsequent treatment	125.00
Decompression of brain	100 00
Trachectomy	50.00
Intubation	25.00
Herniotomy, bilateral	110.00
Tonsilectomy	25.00
Joint mice, lateral incision	50.00
Open operation for reduction of fracture	25% plus
Infected compound fracture, dressings each	2.00

Not to exceed 100% of flat fee for said fracture.	
Plates, removal of	15.00
Autogenous bone graft, primary	100.00
Autogenous bone graft, for non-union or malposition, plus 50% of flat fee.	
Injection of antitoxin for tetanus, each treatment	3.00
Total, not to exceed	25.00
Examination in lunacy, including written report	5.00
Autopsy, complete, with written report	25.00
Autopsy, attending but not performing	10.00
Tendon suturing, finger or toe	25.00
For each additional 50%.	
Casts, when ordered by Medical Division as treatment:	
Arms or legs	5.00
Body or pelvis, including legs	10.00
For salvarsan injections $7.50 each, including salvarsan used. Mercurial injections $2.00, including mercury used. (Mercury must be intermuscular.) Maximum fee allowed including salvarsan and mercury used	50.00
Wassermann	2.50

After complete discussion motion was adopted approving the above schedule.

The House of Delegates adjourned until the following day.

SECOND SESSION.

The House of Delegates was called to order by the President, Friday, September 2nd, at 9:30 A. M.

On calling the roll a quorum was found present.

Deceased Members.

I regret to report the decease of the following members and suggest that suitable action be taken:

Dr. Ernest E. Beckett, of Seattle, a graduate of Hering Medical College, 1895. Deceased April, 10, 1920.

Dr. Y. C. Blalock of Walla Walla, a graduate of Jefterson, 1884. Deceased May 12, 1921.

Dr. C. M. Buchanan of Tulalip, a graduate of National, 1890. Deceased 1920.

Dr. Chas. E. Case of Tacoma, a graduate of Calif. Ecl. M. C., 1880, Illinois, 1886. Deceased March 18, 1921.

Dr. Brock E. Cohoon, of Seattle, a graduate of Oregon, 1911. Deceased October 22, 1920.

Dr. A. W. Hawley of Seattle, a graduate of Rush, 1890. Deceased October 25, 1920.

Dr. C. M. Holcomb of Seattle, a graduate of Jefferson, 1887. Deceased March 29, 1920.

Dr. J. R. Shiley of Seattle, a graduate of Northwestern, 1911. Deceased February 16, 1921.

Dr. L. M. Sims, of Kalama, a graduate of Rush, 1888. Deceased April, 1921.

Dr. W. H. Stutsman, of Seattle. Deceased July 22, 1920.

Respectfully submitted,
(Signed) Dr. C. H. Thomson,
Secy.-treas.

Dr. D. H. Palmer offered an amendment to the By-Laws providing for the office of president-elect. It was laid upon the table until the next meeting.

Dr. R. H. O'Shea offered the following motion—"that the Board of Trustees, through the Secretary, be instructed to take up with the Judiciary Committee of the A. M. A. and give them the reasons why the House of Delegates and the Board of Trustees considered the by-law adopted by the Spokane County Medical Society in conflict with the By-Laws of the Washington State Medical Association." The motion was seconded and adopted.

In order to provide for closer cooperation between the State Medical Association and the Public Health League, Dr. G. W. Swift moved that we instruct the trustees of the League of our acceptance of their proposition relative to trustees. Dr. Swift explained that the Constitution and By-Laws of the League had been amended to provide for three trustees from this Association, to consist of the president, secretary, and one other member of the Association. He also called attention to the fact that the proposal had been adopted by the State Board of Trustees. Motion was seconded and adopted.

Dr. Swift stated that we and the League were asked to take some action in regard to the right of osteopaths and others not physicians and surgeons, to care for workman injured under the State Industrial Insurance Act. He stated that the attorney general had advised the Industrial Insurance Commission that a chiropractor could render aid under this act, and that a test suit was being brought on a chiropractor to maintain this right. After lengthy discussion it was moved and adopted that we endorse the defense of this case and recommend that the League undertake this matter, that we extend to them not to exceed five hundred dollars in that defense.

Dr. R. J. O'Shea moved that the next meeting of this Association be held in Tacoma. Motion seconded and carried.

Election of Officers.

The House of Delegates then proceeded to elect the officers for the ensuing year. (Those whose terms did not expire are added to complete the list).

The following were duly elected.

President—Dr. W. D. Read, Tacoma, term expires, 1922.
1st Vice-Pres —Dr. H. D. Dudley, Seattle, term expires, 1922.
2nd Vice-Pres.—Dr. R. T. Congdon, Wenatchee, term expires, 1922.
Secy.-Treas.—Dr. C. H. Thomson, Seattle, term expires, 1922.
Asst. Secy.-Treas.—Dr. J. H. O'Shea, Spokane, term expires, 1922.

Trustees.

1st District—
Dr. R. H. O'Shea, Seattle, term expires, 1922.
Dr. H. D. Brown, Mt. Vernon, term expires, 1922.
Dr. D. A. Nicholson, Seattle, term expires, 1923.
Dr. A. O. Loe, Seattle, term expires, 1923.
2nd District—
Dr. H. P. Marshall, Spokane, term expires, 1922.
Dr. S. S. Oppenheimer, Spokane, term expires, 1922.
Dr. J. B. Munly, Spokane, term expires, 1923.
Dr. Elmer Hill, Walla Walla, term expires, 1923.

Journal Trustees.

Dr .J. B. Manning, Seattle, term expires, 1922.
Dr. J. P. Brown, Tacoma, term expires, 1922.
Dr. W. C. Speidel, Seattle, term expires, 1922.

Delegates To A. M. A.

Dr. D. E. McGillivray, Pt. Angeles, term expires, 1922.
Dr. C. R. McCreery (alt.) Tacoma, term expires, 1922.
Dr. J. D. Windell, Spokane, term expires, 1923.
Dr. D. H. Palmer (alt.) Seattle, term expires, 1923.

Motion was adopted that the president of this Association be empowered to act with the chairman of the League and Commissioner of Health in arranging matters of hospital Standardization for the coming year.

Dr. J. H. O'Shea moved that the House of Delegates of the Washington State Medical Association endorse the League for Conservation of Public Health, and compliments its officers on the work they have accomplished during the past year, and it it the sense of this meeting that the League of Conservation of Public Health remain a separate entity from the State organization except insofar as we are represented on the Board of Trustees by the three men designated by the present secretary. The motion was seconded and adopted.

The Fifteenth House of Delegates adjourned sine die.

(Signed) DR. C. H. THOMSON,
Secy.-treas.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Diseases of Children. Designed for the Use of Students and Practitioners of Medicine. By Herman B. Sheffield, M. D., Formerly Instructor of Diseases of Children, New York Postgraduate Medical School and Hospital, etc. With 238 Illustrations, mostly original, and nine color plates. 798 pp. $9. C. V. Mosby Company, St. Louis, 1921.

The author is a believer in top milk mixtures rather than modified whole mik formulas. He does not place his babies on cereals and purees as early as some authors, but does advocate milk as main article of diet till child is well over the two year limit. There is an excellent chapter on immunization, prevention, and control of disease. with several pages on diphtheria, Shick test, and toxin-antitoxin immunization. He goes into the septic nature of diseases of the newborn, and states that in many of the so-called congenital hip cases the result is acquired from sepsis in early infancy. Pylorospasm is well discussed both from medical and surgical standpoint. In diseases of the respiratory system the anaphylactic and allergy reactions are grouped as separate and distinct from true asthma. Beside advocating vaccine treatment for pertussis with opiates as needed, he recommends use of calcium salts and soda hypophosphates as in spasmophilia; also has two good pages on pertussis neonatorium.

Discussing diseases of the kidneys and bladder under treatment of pyolitis, he advocates the use of hexamethylenamine and potassium citrate at the same time, which is contrary to all teaching and reading to date. He handles well the subject of ductless gland diseases and treatment so far as conservatively handled today. The book as a whole is well written, u pto date, has good headings and subheadings. It is profusely illustrated with plates, charts, colored photos, and outlines of differential diagnosis and is well worth reading.

MOON.

General Surgery. Practical Medicine Series. Vol. II, Series 1921. Edited by Albert J. Ochsner, M. D., F. R. M. S., LL. D., F. A. C. S., Major M. R. C. U. S. A. Surgeon-in-Chief Augustanna and St. Mary's of Nazareth Hospitals, etc. 625 pp. $2.50. Year $12. The Year Book Publishers. Chicago, 1921.

The surgical literature of 1920, including much from foreign magazines, is here abstracted and commented upon in a practical, effective way and the editor's experience is made much use of in confirming and amending. Some that is new and much that is old are alike treated in the discussion. Choosing at random, the following seem worthy of mention: anesthesia receives much notice, drop ether remaining in favor; the editor observes that a well trained nurse is preferable for its administration to the specialist in anesthesia, who, he says, is in most cases a failure in the practice of medicine and surgery; local, spinal, rectal and gas oxygen are still pressing for proper recognition; the high mortality (40 to 80 per cent) of breast cancer operations is reduced greatly where preoperative as well as postoperative raying is employed; chlorine antiseptics and picric acid solutions have much value, and ointments of mercury, etc., are being used on septic wounds; 95 per cent phenol on a probe still leads as a local treatment for boils, sugar and starches being eliminated from the diet; Huber and Lewis' great work on the alcoholic injection of nerves to prevent postoperative pain and neuromas after amputation; Adson's success in treating cerebral abscesses, especially during the quiescent period; W. D. Haggard's operative mortality of 33 per cent in toxic goiter; pathology of pain in the right iliac fossa not relieved by operations on the appendix. This series is primarily for the general practitioner, but the individual volumes are sold separately for the convenience of those specially interested.

FORBES

The Medical Clinics of North America. Chicago Number, July, 1921. W. B. Saunders Co., Philadelphia and London.

Williamson presents four most instructive cases of pericarditis. His work in taking casts of the pericardium, by which he showed that fluid first collects along the lower margin of the heart, is well known. For this reason the first sign, in addition to pericardial friction rub, is the pushing down of the left lobe of the liver one or two finger breadths. Also there may be an enormous amount of fluid present before the friction rub is obliterated. Puncture had best be made just outside the apex and, if the apex is punctured, little harm re-

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sults. Elliott, in a most impressive talk on gallop rhythem in Brights disease, considers that its presence, along with a rapid heart and nitrogen retention, marks the terminal stage of the disease.

Bassoe contributes an intensely interesting clinic on acromegaly, gigantism and duarfism. He shows many patients exhibiting these conditions. The occurrence of eunuchoidism, owing to disease of testicles, with the occurrence of gigantism and obesity, but without the changes in bone and soft stuctures characteristic of acromegaly, are more than usually instructive. All giants are abnormal and occur as examples of gigantism with infantism (eunuchoidism), or of acromegaly, or with both combined. This number fairly abounds in cases of the greatest value and interest and only lack of space limits us to the notice of these few contributions. It is a number of most extraordinary worth.

WINSLOW

General Pathology. An Introduction to the Study of Medicine. Being a Discussion of the Development and Nature of Processes of Disease. By Horst Oertel, Strathcona Professor of Pathology and Director of the Pathological Museum and Laboratories of McGill University and of the Royal Victoria Hospital, Montreal, Canada. Cloth, pp. 357, with Illustrations. Price $5.00 net. New York: Paul B. Hoeber, 1921.

The subject of general pathology has too long been the **bete noire** among physicians in general, even among those who lay claim to being well versed in all subjects of medicine. The reason for this is that most physicians, the majority, have for some unexplainable reason regarded the study of general pathology as too abstruse and too wearisome a subject to cope with, and have relegated, on account of this attitude, its interpretation to those men in the medical profession who are specialists in pathology. There are three reasons which should be mentioned here why Oertel's work should commend itself to such physicians, and they are as follows: Pathologic processes are regarded as expressions of physicochemical laws; the great educational value which accrues from a study of the historic development of ideas and hence an understanding of current ideas; the visualization of possible pathologic occurrences based on the anatomic conceptions of the subject. Any book on general pathology that has reasons such as the three mentioned above has an asset which should bespeak a wide circle of readers; and when added to these are a simplicity of presetation and clarity of thought that are evidenced on every page, it cannot be gainsaid that the medical profession has a book at hand that is of unusual merit.

WEST

The Science of Ourselves. A Sequel to the Descent of Man. By Sir Bamofylde Fullar, K. S. S. I, C. I. E. Cloth 321 pp. Oxford University Press. London and New York, 1921.

While the title of this book may seem somewhat ambiguous, it is the endeavor of the author to trace the evolvement of the mind of man in the process of evolution from the unconscious to the consious. Logical reasoning leads to the conclusion that thoughts and feelings are nervous processes or functions of the central nervous system, developed in the course of evolution. This view may run counter to religious teachings and sentiment but the writer believes that the study of the subject leaves no other tenable hypothesis possible. The work is a very scholarly and thoughful presentation of the origin and gradual development of our motives and behavior as depending on the appetites, emotions, respect, faith, obedience, emulation, industry, morality, speech, writing, character and education.

The book abounds in illustrations and similes and the author is continually throwing new and most inteesting light on the origin of our most common motives, behavior, customs and arts. It is a work that any educated man, but more particularly the physician, may read with absorbing interest and unquestioned profit.

WINSLOW

The Surgical Clinics of North America. (Issued Serially, one number every other month) Volume I Number 3. By Boston Surgeons. 345 pages, with 159 Illustrations. Per clinic year (February 1921 to December 1921). Paper $12.00 net; cloth 16.00 net. Philadephia and London: W. B. Saunders Company.

A splendid contribution on the treatment of renal calculus, by Barney, Williams and Shedden from the Mass. General Hospital, brings out numerous most important facts that are of great value for the surgeon and physician alike. The almost complete resemblance of right-sided renal calculus in its acute sympomatology to appendicitis has led to many mistakes and useless operations. In the milder conditions it is found that the urine and x-ray are negative in from 11 to 14 per cent of cases of renal calculus. Stone may give rise to no symptoms for long periods, and occasionally pain is felt in the unaffected kidney. One of the most surprising facts is the frequency with which stones are overlooked at operation. In twenty instances, in which the kidneys were x-rayed immediately following operation for stone, shadows of stone were found in nine, or in 45 per cent the operation was unsuccessful.

The paper on lung abscess by Whittemore is another article of great interest. Out of 32 cases 17 were due to removal of tonsils, one to removal of adenoids, and three to extraction of teeth. It is not mentioned that these cases occurred after the use of general anesthesia but this is undoubtedly the fact, for in the Mayo clinic no cases of lung abscess occurred after local anesthesia in tonsillectomy. These surgical clinics are of as much value to the medical man as to the surgeons because most of the cases come first to the general practitioner and diagnosis is the first essential. We reiterate that no medical publications possess more usefulness and live interest for the medical man than Medical and Surgical Clinics.

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ORIGINAL CONTRIBUTIONS

THE MANAGEMENT OF SQUINT IN CHILDREN.*

WALTER K. SEELYE, M. D., F. A. C. S.
SEATTLE, WASH.

The purpose of this paper is to enlist the interest of the general practitioner in the very important and much neglected subject of cross eyes in children. It is an appeal for cooperation in the saving of the full usefulness of both eyes for the little unfortunates whose eyes will not coordinate.

We propose to show:

1. That neglected squint or cross eyes is almost certain to result in permanent impairment of the visual function, generally with incurable partial blindness of one eye.
2. That the popular notion that the child will outgrow it is a fallacy.
3. That the essence of success in the treatment is early attention.
4. That no child is too young for treatment.
5. That it is the duty of the family physician to be informed on the matter and to advise parents.

Definition. In squint or strabismus (we prefer the shorter word) the outstanding feature is, of course, the deviation of the visual axis of one eye from the correct position of fixation, the squinting eye turning in or out or, rarely, up or down. This, however, is but a part of the real condition. For example, in constant convergent squint, the most common form, we have, first, excessive convergence of one eye; second, a defect in the fusion faculty; third, generally, suppression of vision in the squinting eye with consequent loss of binocular vision; fourth, generally acquired amblyopia in the deviating eye, amounting sometimes almost to blindness; fifth, in the majority of cases, a refractive error, most commonly hyperopia.

Of these conditions that go to make up squint, the one probably of greatest importance in the cause and, when seen early most important to consider in the treatment, is the defect in the fusion sense. In neglect cases the child loses permanently this faculty; and, even tho made straight by operation later, the eye will fail to perform its function and binocular vision is lost. The importance of securing binocular vision will be taken up later in this paper.

Cause. The earliest theory advanced was that an abnormal shortening of one of the recti muscles caused squint. But it can be shown that the outward excursion of the deviating eye when tested alone, in convergent squint is generally quite as great as that of the fixing eye; in fact, both eyes are generally normal in this respect. Cures are affected in many cases without interference with the muscular attachments. It is probable that some cases are caused by muscular anomalies but only a part.

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* Read before King County Medical Society, Seattle, Wash., Sept. 19, 1921.

Then came the theory of excessive convergence excited by hypermetropia, since the hypermetrope has to accommodate constantly to obtain a clear retinal image and thus stimulates to excess the convergence, the two acts being performed conjointly in normal eyes. For example, when a person with normal refraction looks at a distant object, the visual axes are practically parallel and each eye focuses the image upon its retina without accommodating, with the ciliary muscle at rest. If now the person looks at an object but a few inches away, he must turn the eyes inward, converging, in order that both visual axes meet at the same point; and at the same time each eye must be focused for near vision—accommodating—in order that the object may be seen distinctly. The two acts, accommodation and convergence, become associated by habit, so that it is difficult to accommodate without converging or to converge without accommodating. Hypermetropic eyes in a state of rest are out of focus even for distant objects and still more so for near objects. A hypermetrope, therefore, in order to see clearly must accommodate even in distant vision to a degree corresponding to his hypermetropia. In near vision he must accommodate both for his hypermetropia and for the nearness of the object. There is a *tendency* for a proportionate abnormal convergence to accompany his abnormal accommodation. This is undoubtedly a factor in causing squint in some cases; but we find convergent squint without refractive error, and in all degrees of hyperopia with no constant relation between the degree of convergence and the error of refraction.

According to Worth, who is probably our best authority on this subject, the fundamental cause of squint is defective fusion sense. Normally binocular vision is exercised by infants at the age of six months, and maintained most of the time. By the end of the first year the development of the fusion faculty is fairly well advanced. The instinctive tendency then to blend the images formed in the two eyes will keep the eyes straight and only an actual paralysis will cause them to deviate. But, says Worth, owing to a congenital defect the fusion faculty may develop imperfectly or later than it should, and then, since there is nothing but the motor coordinations to preserve the normal relative directions of the eyes, anything which distrubs the balance of these coordinations may cause a permanent squint.

Thus, continuing with Worth's theory, the essential cause of squint is a defect in the fusion faculty. In the presence of this condition the eyes are in a state of unstable equilibrium, ready to squint in or out on the slightest provocation. This provocation may be furnished by:

1. Hypermetropia with its tendency to abnormal convergence, as already explained. In these cases the squint is at first occasional. When the eyes are at rest with the accommodation relaxed, they are straight. Optical correction of the refractive error at this period often cures the patient.

2. Anisometropia, unequal refractive power in the two eyes which, by making binocular vision more difficult, predisposes to squint. Here, too, early optical correction is all important.

3. Congenital amblyopia in one eye, the blurred image in the defective eye affording little or no stimulus to binocular vision. Treatment of these cases is more difficult and less satisfactory, but fortunately they are very rare.

4. Specific fevers and whooping cough. That these are often followed by the development of squint is explained on the ground that the illness has caused a muscular enfeeblement, which necessitates an unusual effort in accommodation and this excessive effort upsets the equilibrium. Glasses will generally cure these cases, if applied promptly.

5. Violent mental disturbance caused by severe fright, convulsions, etc. In the absence of fusion sense, this may upset the muscle balance. In just what manner the changes are brought about in these cases the neurologist is invited to explain. The clinical evidence is seen frequently in the history of onset given by parents.

6. Injuries at birth to the sixth nerve or the muscle it supplies. In these cases the position the eye is compelled to take naturally prevents development of the fusion sense and amblyopia also is likely to result.

7. Hereditary influence. This is frequently noted.

Onset and Course. Convergent squint, the form we most frequently meet, begins in early childhood, generally between the ages of one year and six, most commonly between two and four. The wandering eyes of a few weeks old baby should not be classed as true squint. The normal child learns to fix with both eyes in a few months, however. If a child eight months of age crosses his eyes for many minutes at a time and frequently, if one eye converges while the other steadily fixes some object, the case should be investigated without delay. It is better to investigate any case in which a child is seen to cross its eyes occasionally rather than to wait until what may have been a premonitory squint becomes a constant squint, for then the vision in the squinting eye will rapidly deteriorate. The younger the child, the faster will this amblyopia from disuse develop.

At about the age of puberty the angle of convergence in the untreated cases often becomes less and in rather rare cases the eyes may become apparently straight. The patient is then said to have grown out of it but in most cases the squinting eye has by this time become nearly blind from disuse and will so remain for life. This is outgrowing it! Only the outward deformity is removed, the function is lost forever. It is to be regretted that this belief in the spontaneous cure of squint is not confined to the laiety. Too often the family physician has advised the parents to wait and see if the child would not outgrow it.

Let us follow the course of an untreated case of convergent squint in a child of say four years of age. It begins with the occasional crossing of the eyes, generally occurring when looking intently at some interesting object. In a few weeks it becomes constant. At this period the squinting eye has the power of central fixation, when the other eye is covered, and the vision may be as good or nearly as good as in the other eye. The child soon learns to suppress the image in the deviating eye, and from disuse the eye loses the power of central fixation and its vision deteriorates, frequently to inability to count fingers close to the face. While this is going on, the development of the fusion sense is, of course, arrested completely and hopelessly, if not saved by appropriate treatment before the end of the sixth year. The child enters school handicapped by monocular vision. The case may be discovered by the school nurse and relief sought at the age of six or seven; but too often it is even then too late to restore the vision of the eye and to revive the fusion sense. If this case could have received appropriate treatment at the beginning, within a few weeks of the onset, the full use of both eyes could almost certainly have been saved.

And in this connection a word about the value of binocular vision. By it we measure depth and judge distance. A one-eyed person, or one without binocular vision, is very much more liable to injury in the commonest every-day acts, as in driving nails, splitting kindling, etc. The mechanic so afflicted is handicapped seriously. The candidate for aviation service is ruled out, if he has not perfect binocular vision.

The part this function plays in judging distance is easily illustrated in a simple experiment. Stick the point of an open pocket knife in a door casing at a height level with the eyes and with the handle at right angles to the plane of the wall. Stand back ten feet, close one eye, walk rapidly up with one arm and the index finger extended and swing down on the knife, trying to hit just the end of it with the tip of the finger. The result is generally a miss by several inches, while with both eyes it is a sure thing everytime. The writer has used this in the office to demonstrate to parents the value of binocular vision and to impress upon them the importance of saving it, if possible, in the case of youngsters with crossed eyes.

Treatment. The objects are (a) to prevent deterioration of the sight in the squinting eye and to restore it as far as possible in cases where amblyopia from disuse has been allowed to occur, (b) to remove the fundamental cause by training the fusion sense at the earliest possible age, (c) to restore the visual axes to their relative directions. We have at our disposal (1) optical correction by glasses, (2) occlusion of the fixing eye, compelling the use of the squinting eye, (3) instillation of atropine in the fixing eye only, for the same purpose, (4) training the fusion sense, (6) operation. Glasses, if needed, come first; operation comes last.

What shall we do with a cross-eyed baby? If two years old and glasses are needed put them on This may be the only salvation for the one eye. If the child is but one year old, we can do much toward preventing the development of amblyopia in the squinting eye by covering the other one part of the time, not a few hours each day but for a week at a time, and by occasional use of atropine in the fixing eye, providing glasses later if needed. If the squint persists after glasses have been put on, the cover treatment is continued with atropine at intervals for three months or longer, depending upon the age of the child and the results obtained. If perfect parallelism is not secured by the time the child is five years old, we advise operating in order to give the fusion faculty an opportunity to develop before it is too late. Worth urges us to attempt to develop the fusion sense in these little squinters by certain exercises with pictures and drawings viewed thru an adjustable steroscope, but the writer confesses to lack of success with this method.

If the case is not taken in hand until after the age of six or seven years, glasses if needed should be ordered and the result noted. Generally the deviation will be lessened somewhat, but only an operation will fully correct it, and we are fortunate if at this age or later we can accomplish more than cosmetic results. It may be as well, then, to postpone operating until the age of eleven or twelve and have the advantage of operating under local anesthesia with more certainty of results. If the squint is of high degree and the deformity conspicuous, the mental effect on a sensitive child which will result from being freed from something that makes him the object of ridicule by other children would alone be sufficient to warrant earlier operation. Furthermore, binocular vision is sometimes obtained by operating after the age of six, and this would be another reason for not delaying operation in these cases. There may be different opinions on this point and discussion is invited. There can be no argument, however, as to the advisability of early treatment, the earliest possible in all cases.

The recognition of squint is not always so easy or certain as it might seem. It occurs in varying degree and in the milder forms one cannot be positive by simply looking at the eyes. If in doubt hold a small light before the child and, while he is looking at it, observe the position of the light reflex on each cornea. If both eyes are directed at the light, the image of the light will appear in each cornea at or near the center over the pupil, generally a little to the nasal side in each but symmetrical. A displacement outward of the reflex in one eye indicates that the eye turns in. To prove, cover the other eye and observe that the reflex moves toward the center, as the deviating eye fixes on the light.

The unfortunate results of neglecting those cases are seen too frequently. As an instance:

H. T., a boy of seven, was brought in to see about his cross eyes because the other children in school made fun of him. He had a constant convergent squint of the left eye of 25°. Vision in the right eye was 20/20-3; with the left eye he could count fingers at ten feet with some uncertainty. In fact, when the other eye was covered, he had difficulty in finding even a large object. Vision in this eye was not only much reduced but central fixation was lost. Examination disclosed a moderate degree of hypermetropia alike in both eyes; no fundus changes. There never is in these cases. The amblyopia was undoubtedly from disuse.

Glasses were fitted to correct the refractive error and the cover treatment was faithfully carried out for months. The deviation lessened to a marked degree, but the partial blindness persisted with absolutely no improvement in vision. The eye is nearly useless and will probably become worse in later years. Operation will only remove the slight remaining convergence and, with no incentive in the eye to fix with the other one, there is no assurance of the permanency of the result of an operation.

The child is forever deprived of binocular vision. He will not have a fair show in school and his earning power in adult life will be lessened. An accident to the good eye, furthermore, would completely incapacitate him. That child's father, an intelligent man, stated that in the beginning the eyes would cross only at times and that it so continued for some months. That was when the boy was only three years old. He spoke to the doctor who was his family physician at the time and was told "it will probably be all right in time, there is nothing to do now anyway." The father reported to him some months later that the trouble seemed to be getting worse and the doctor said the boy was too young to have anything done. If that child could have had proper treatment at that time, it is almost a certainty that the eye which is now useless could have been saved. This and other similar cases prompted this paper.

In contrast may be cited the case of T. H., brought in at the age of two and a half years. Constant convergent squint in the right eye with history of having begun two months previously following convulsions. Under atropine, retinoscopy showed a high degree of hypermetropia.

Glasses were ordered and the little two year old took to them readily. The squinting eye was brought into use by covering the other and atropine was used at intervals in the fixing eye. In a few weeks parallelism was secured and fusion reestablished.

To set an eye straight by an operation on its muscles is an accomplishment in cosmetic surgery, but to guide nature to the restoring of a lost function in an organ of special sense so important as sight is indeed an achievement. In attaining it the honors may be divided between the specialist who may direct the treatment and the family physician who recognizes the trouble in its beginning and informs the parents of the need of early treatment.

806 American Bank Bldg.

BRIEF DISCUSSION OF TRACHOMA WITH REPORT OF CASES.*

IRA E. GASTON, A. B., M. D.
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The subject of trachoma is too broad to be even touched upon in all of its phases in a brief paper; hence this discussion will be confined chiefly to some of the practical problems in the control of this disease.

We in the Pacific Northwest have been wont to assume that we have practically no local trachoma problem. Dr. Harry V. Wurdemann, of Seattle, in an editorial in the *American Journal of Ophthalmology,* June, 1919, states that in his practice here during the past ten years he has seen relatively very few cases of trachoma, as compared with the number he encountered during his practice in the Great Lakes region. He also states that practically all cases found here are imported. He attributes our freedom from trachoma to our mild climate, soil conditions and the generally hygienic mode of living of the people. Practically all the cases I have seen contracted the disease while living in this region.

I think we will all agree that we have nothing like the incidence of trachoma here that is found in the large cities of the Atlantic Coast, where it is largely imported from Europe; or in such regions as the mountains of Kentucky and Tennessee, where the disease is endemic. But that we have a real problem here has been impressed upon me by some observations in my own practice. I was surprised upon looking over our records to find that we have treated twenty cases of trachoma in the past year. And when you consider that this is probably only a very small percentage of the number of cases existing in this locality, you will readily see that we have reason to regard trachoma seriously in the Pacific Northwest.

The problem of trachoma is primarily economic. It never produces death, but its power to produce disability is very great. Children with the disease are very often unable to pursue their studies at school, adults are prevented from continuing their usual occupations, and not a few are rendered totally or practically blind by the disease. Dr. George S. Derby, writing in the *American Journal of Ophthalmology,* July, 1919, of his observations in Europe with the American Expeditionary Forces, states that during 1918 the British Army had on its invalid list 5,000 soldiers rendered blind by trachoma. The same writer states that in the civilian labor companies with the allies trachoma becomes such a menace that it was necessary to establish a rigid inspection of all the men and segregate the ones affected with trachoma, to prevent the spread of the disease and the consequent loss of man-power in the labor companies. Besides, rigid inspection of the Chinese laborers at the port of embarkation was ordered to prevent the shipment of infected cases.

The etiology of trachoma still remains obscure. It seems to be the consensus of opinion among the leading authorities on the subject that the disease is communicable, and therefore probably due to an infective agent of some sort, but the exact nature of the infective agent has never been discovered. It is generally conceded that the infection occurs by the transference of the secretion from a trachomatous conjunctivitis. The reports of the examination of the Chinese coolies in France afford striking evidence of the infective nature of trachoma. E. J. Stucky and C. A. Hughes, writing in the *China Medical Journal,* November, 1919, state that in the early drafts of Chinese coolies it was found that from ten to fifteen per cent were suffering from trachoma when they arrived in France; and this in spite of the fact that each coolie was medically examined in China before embarkation and those diagnosed as trachomatous were supposed to have been rejected. Upon arriving in France, the men were examined in the order in which they bunked on shipboard. These examinations showed that the trachomatous cases occurred in groups of men bunking closely together, and further inspection revealed that one of the cases in the group had been trachomatous before embarking.

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*Read before the Ninth Annual Meeting of the Alumni Association, Medical School, University of Oregon, Portland, Gregon, May 31-June 2, 1921.

Dr. F. B. Eaton, of the United States Public Health Service, in a report to the Surgeon General in 1918 of his investigations of trachoma in California and Oregon, stated he believed he had demonstrated that domestic animals, as horses and dogs, are intermediary hosts of the trachoma infection. Later, however, after more extensive investigations in the trachoma infected regions of Kentucky, he repudiated his former claims. Now he is convinced that the spread of the disease is due to the actual transference of the virus from an infected eye thru the medium of the conjunctival secretions. He attributes the prevalence of trachoma among the mountaineers of Kentucky to their unsanitary habits and social customs, as the use of a common towel and wash basin. In most all the cases I have treated I have found two or three members of the family infected. It follows from the foregoing that the more profuse the conjunctival discharge, the greater the danger of spreading the disease.

Some facts with regard to trachoma are very difficult to explain. For example: Why do we have cases of trachoma with one eye trachomatous and the other eye entirely free from the disease? About 20 per cent of the cases I have seen in the past year were unilateral. One case had a most fulminating type of the disease in one eye, producing complete pannus with profuse discharge, lasting for more than a year, yet the other eye remained entirely free. Also, why do we encounter families where two or three members are trachomatous and the other members remain free, without their having taken any precautions against the spread of the disease?

In the diagnosis of trachoma very often differences of opinion arise. Sometimes in the earliest stages of acute cases it is impossible to determine whether we are dealing with an ordinary bacterial infection or trachoma. In such cases a short period of observation under ordinary treatment will decide the case. Not infrequently ordinary follicular conjunctivitis is diagnosed trachoma, with a consequent very great embarrassment and loss to the patient. Dr. John MacMullen, of the United States Public Health Service, states that numerous instances occurred in the examination of drafted men during the World War of benign conjunctivitis being diagnosed as trachoma. The same error is continually being made in the routine examination of school children. We will admit, of course, that in any instance where it is not possible to tell whether a case is trachoma or not the case should be treated as trachoma until the diagnosis can be cleared up.

In this brief paper I shall only mention some of the principal points in the diagnosis of trachoma. Both trachoma and follicular conjunctivitis may occur at any age, but trachoma occurs predominantly in adults, while folliculosis occurs mostly in children. The follicles, or granulations, of trachoma usually predominate in the tarsal and retrotarsal conjunctiva of the upper lid. The follicles of follicular conjunctivitis usually occur mostly on the lower lid and in the retrotarsal folds, seldom in the tarsal conjunctiva. The follicles of folliculosis are smaller, more superficial, more discrete, and often arranged in rows. Folliculosis does not produce hypertrophy of the conjunctiva and tarsus, as does trachoma; nor does it produce scarring of the conjunctiva or pannus, and seldom produces corneal ulcers. We should not wait, however, for cicatricial changes in the conjunctiva and pannus before making a diagnosis of trachoma.

Trachoma is sometimes confused with vernal conjunctivitis, but usually the symptoms of the latter are sufficiently typical to suggest the diagnosis. Besides, the papillary growths on the conjunctiva in vernal conjunctivitis are much broader and firmer and more mushroom-like than in trachoma.

The prevention and control of the disease is in a great measure educational—teaching the sufferers and the public how to prevent the spread of the infection. Also, means should be provided for the efficient treatment of the infected cases. McMullen believes this is a proper function of the Public Health Service of the individual states. He says that in Kentucky, Virginia, West Virginia, Tennessee and North Dakota, where free trachoma hospitals have been established, the results of the work have been exceedingly satisfactory. In these states and in many others trachoma is a reportable disease. And I am not sure that it is not of sufficient prevalence in Oregon to warrant its being placed on the reportable list here also.

The treatment of trachoma is largely surgical. On this point there is a great deal of difference of opinion, and the number of remedies and methods of treatment are legion. The object of treatment in the comparatively early stages is the relief of the hypertrophy of the conjunctiva, the destruction of the trachoma granules and the elimination of the infectious secretions. And it is the experience of at least a great number of leading ophthalmologists that these results can be accomplished most quickly and efficiently by surgical measures. Later, trichiasis, entropion, pannus and various other sequelae may need the attention of the ophthalmic surgeon. McMullen states that in the state trachoma hospitals, previously referred to, practically all cases were treated surgically. Dr. Geo. S. Derby, in writing of the control of trachoma among the Chinese coolies in France, states that they were treated by silver nitrate or the copper stick and in some cases simple expression of the granulations. In commenting on this he says, "By the procedure described it was not expected that these laborers would be cured of their trachoma, but it was expected that the spread of the disease would be limited and that their working efficiency would be raised to the highest point practicable." He recognized these as only palliative measures.

Let me cite a few cases from my own limited experience with trachoma. About one year ago a young farmer came to our office complaining of being unable to carry on his ordinary work on account of sore eyes. Examination showed that he had trachoma in a rather advanced stage with conjunctival granulations and cicatrices and extensive pannus, with frequently recurring corneal ulcers. The history revealed that he had been under medical treatment by a leading ophthalmologist for the past ten years. He stated that his eyes would become fairly comfortable after a few weeks daily treatment at the doctor's office, but that immediately upon going home and beginning work the trouble would recur. I treated him by operative methods and in a short time he went to work and his eyes have remained well ever since.

I found that his brother also was suffering from a similar condition and had been treated by the same doctor. His trouble cleared up even more readily than in the first case under similar surgical treatment.

These cases had been given only medical treatment, but I am sure they received the best medical treatment of which we have any knowledge, for the doctor who had charge of these cases is a man of high standing in the profession. Practically all the cases I have treated had received previous medical treatment of some sort, with little or no relief. Some had been treated by means of the roller forceps.

The treatment I have used in practically all cases is almost entirely what I learned from Dr. L. Webster Fox, of Philadelphia. His methods appealed to me as being the most efficient I have seen practiced. For elimination of the trachoma granules the grattage is the procedure followed. In cases with extensive pannus the peritomy or peridectomy operation should be performed. Mild pannus frequently clears up of itself after the disease of the lids has been cured. I have adopted the procedure of operating on the pannus when necessary at the same time I do the grattage in order to obviate a second operation. Occasionally a second grattage or a second peritomy is necessary to clear up the disease entirely. In cases where distortion of the lids, as trichiasis or entropion, has occurred, appropriate operative procedure for the relief of these conditions should be instituted.

Following is a brief account of some of the most interesting of the cases I have treated:

Case 1. Male, age 19, farmer, history of sore eyes since childhood. Given medical treatment past ten years. Examination May 22, 1920, showed extensive pannus of both corneae. Upper tarsi thickened and conjunctiva granular with some scarring. Marked argyrosis of conjunctiva. Vision both eyes 6/60.

May 25, under ether anesthesia, grattage operation both eyes. Patient left hospital in about a week. On June 6, did peridectomy right eye in office under cocaine anesthesia. On July 9, under ether anesthesia partial peridectomy both eyes and also partial grattage on right eye to clear up some remaining granulations. Patient went to work about August 1 and his eyes have remained well. Vision when last seen 6/20 plus.

Case 2. Male, age 25, brother of Case 1, history of trachoma since childhood. Medical treatment past ten or twelve years. Examination September 1, 1920, showed extensive pannus and corneal haze in both eyes. Extensive granulations with some scarring of conjunctiva of upper lids.

Argyrosis of conjunctiva. September 10, 1920, under ether anesthesia grattage and peridectomy both eyes. Patient left hospital on fifth day. Able to go to work in shipyard four weeks after operation, and eyes have remained well.

Case 3. Girl, age 14, history of left eye very sore past year. Medical treatment past year with no improvement. Examination showed lids of left eye markedly thickened, profuse mucopurulent discharge and patient complaining of considerable pain and photophobia. Cornea entirely covered with pannus and so opaque vision was reduced to bare perception of large objects at a few feet. Conjunctiva greatly hypertrophied and studded with granulations. Right eye entirely free from any evidence of trachoma.

Under ether anesthesia grattage and peridectomy left eye. About two months later repeated grattage and peritomy. Now patient has been free from any symptoms of trachoma several months, is attending school, and can read with the affected eye.

Case 4. Female, age 45, housewife, history of trachoma right eye past fifteen years or more. Treated numerous times without relief. Lids rolled once. Examination September 11, 1920, showed marked granulations upper lid of right eye, slight granulations of lower lid. Thick pannus upper half of cornea and frequent recurrent corneal ulcers. Left eye entirely free from trachoma.

May 7, 1921, under ether anesthesia grattage and partial peridectomy right eye. Left hospital fifth day. Now eye is comfortable and practically well.

Case 5. Male, 25, farmer. First seen on May 13, 1921. Complaining of sore eyes past three weeks, rendering him unable to do ordinary work on farm. Thought eyes well until three weeks ago, but admitted having occasional attacks of conjunctival inflammation past year or two. Examination revealed extensive granulations of the conjunctiva of the upper lids, slight granulations on the lower lids. Considerable pannus had developed from the upper limbus, worse in the left eye.

On May 24, under ether anesthesia, grattage and partial peridectomy of both eyes was done. Patient left hospital fourth day. Now able to get about by himself and eyes fairly comfortable.

These few cases, running over such a short time, are only very meager proof that trachoma is a curable disease; but there is abundant evidence in the literature, written by authorities on the subject, that does prove that trachoma can be cured. It follows, then, that in efficient treatment we have a very potent weapon in the control of this disease.

Corbett Building.

THE MECHANISM AND EFFECT OF MASSAGE OF THE EYEBALL AS APPLIED IN IRITIC SYNECHIAE, GLAUCOMA, EMBOLISM OF THE CENTRAL ARTERY, OPTIC NERVE ATROPHY AND RETINITIS PIGMENTOSA.*

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I approach this subject with some diffidence, for the procedures here described are radical, have been tried by some in inappropriate cases, or their technic has not been that which is advocated and hence, in their hands, have been unproductive of results.

Fact is a very special truth which passes current only with the most discerning—or at times with none—and scientific facts are only believed generally when fully substantiated. Some of the facts in the following are on record, in some quarters having at least been given credence, in others tried out and proven.

Massage has been employed in the treatment of diseases of the eye since the early '70s but particularly during the past twenty years. Donders formally introduced eye massage to ophthalmologists at the London Congress, in 1872. Pagenstecher has done more than anyone else to spread the knowledge of this therapeutic agent; he published his first report in 1878 and it aroused marked interest. In 1881 he compiled a report on the therapeutic value of massage in many diseases of the eye. Since that time Schenkl, of Austria, Panas, of France, and Gradenigo, of Italy, and many others have added valuable contributions to the subject.

We will pass by the use of digital massage for chronic diseases of the lids and conjunctiva, finger and instrumental massage for the cornea, mentioning but briefly that deep digital massage of the eyeball for *embolism of the central retinal artery* has been beneficial in a few cases. The latter was perhaps first demonstrated by Casey A. Wood, being later reported upon by me in several essays. In fact, practically all of the cases of true embolism of recent character, which I have seen in private practice, are on record in these articles.

The affection is rare and the cases are few that are seen within a few hours or days following the impaction of the clot within the vessel, and only these are applicable for any form of treatment; for, after organization of the clot, the artery becomes permanently occluded and vision is hopelessly lost. We can, however, sometimes move an embolus in the retinal arteries by pressing or rubbing the eyeball, even tho it be in the optic nerve back of the eye. Should it be a hard clot, it may probably be tilted or turned in the lumen of the vessel, allowing some of the blood stream to pass. It may be broken up into fine enough particles to permit of it passing into the smallest vessels, where the disturbance of nutrition would be very slight and absorption would more rapidly take place. The same may be said of a thrombus formed at this site, but the latter is apt to be large and soft. It will be liable to fully choke up the vessels and no method likely to secure dislodgment or disintegration. Such cases remain permanently blind and cannot be cured by any form of treatment. The last case of embolism treated by mechanical massage was the following:

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*Read before the Eye Section of the New York Academy of Medicine, May 16, 1921.

N. E. J., aged 70, consulted me about 3:00 P. M., Sept. 2, 1919, stating that he had become suddenly blind in right eye since morning. He had several spells of clouding before the eye during three months, but this time the clouding did not disappear. He was under treatment with Dr. Heussy for arteriosclerosis, enlargement of the heart and renal disease, none of which were marked.

Upon examination he could see movement of large objects to right with right eye; left eye was normal in every respect. Ophthalmoscopic examination showed the disc blanched, the arteries and viens nearly empty of blood. Sufficient time not having elapsed to produce edema of the retina, the typical cherry red sppt in the macula was not seen. Pupil of right eye showed no reaction to light, but contracted to accommodation. B. P. 210 systolic, 110 diastolic. Physical examination of the heart showed it to be somewhat enlarged with snappy sound of aortic valves.

Immediate deep digital massage, followed by suction massage with the pneumatic pump used during a period of one-half hour, frequent observations being made with the ophthalmoscope, and at the end of that time it was found that the disc reddened, both arteries and veins filled and the sight came back to the perception of objects in the whole field. On the next day the visual field was full with the exception of an absolute central scotoma of nearly twenty degrees. Fourteen days later the scotoma had shrunk to ten degrees with restoration of colors and visual acuity of 6/60, when the patient looked slightly to one side, and the fundus appeared normal with normal pupilary reaction.

At the last observation, two months later, the visual acuity remained the same, the fundus appeared normal and the central scotoma was slightly reduced. The patient remained under dietetic treatment and took small doses of iodid of soda. Four massage treatments were given and about twelve of high frequency electricity, the latter incidental to the various examinations rather than in the hope of improvement therefrom.

The case is reported for the reason that I had never before seen one so soon after the sudden blindness, as well as to show the course under this form of treatment.

Since the publication of the first two articles on embolism, I have had much more experience with ocular massage, the digital type of treatment having been largely superseded by instrumental massage with the suction pump apparatus on the Victor machine.

For possibly two decades I have occasionally resorted to a procedure for the relief of *posterior synechiae,* which has not, to my knowledge, as yet been recorded, tho its rationale must be evident to the thinking practitioner of ophthalmology.

Owing to the better education of the general practitioner in diagnosis, as well as the discriminating discernment of the public in applying earlier to the specialist direct for the treatment of eye affections, fewer cases in proportion to those of previous decades are now found of improperly treated iritis. In comparatively few well treated cases do adhesions of the iris result, for the rule of keeping the pupil open first, last and all the time during the course of this disease, or rather syndrome of disease, is well known and atropinization is rigidly followed out, whereupon the patient recovers with a full functioning iris and a pupil freely responsive to light and accommodation.

But we all see cases where application for treatment has not been soon enough, where atropine has not been used sufficiently and where adhesions have occurred which do not break way to intensive cycloplegia. In these it is well to endeavor to secure a round pupil, if only as an evidence of thoro and proper treatment. It is well known that eyes with a few iritic adhesions may not ever have another inflammatory attack, and that these synechiae do not particularly predispose to a recurrence or to secondary glaucoma, providing that there be sufficient drainage from the anterior to the posterior chambers. Therefore, operations for the relief of such adhesions, as were sometimes practised in the past, are not alone unnecessary, but it was found that patients were subjected to a great risk of producing secondary cataract, and even when successful they accomplished no appreciable good.

I have found in many cases (the number of which is immaterial and the report of which in detail would be inconsequential) that forcible massage of the eye by the suction pump breaks up these adhesions and results in a free pupil.

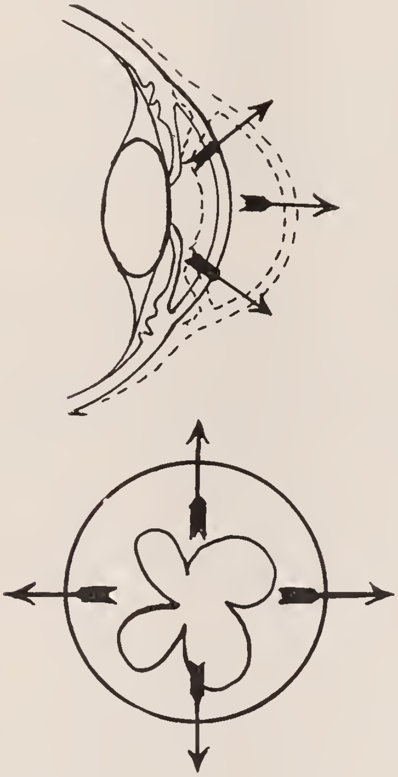

Diagram showing direction of force exerted by suction massage upon the iris and cornea.

The diagrams here submitted show the directions of force applied to the eyeball by this procedure, which is recommended as being rational, without danger and successful in a goodly proportion of cases. Most of the authors employ digital massage in embolism of the central retinal artery, but we find that mechanical massage easily supplants and is. furthermore, an improvement over the digital method (except where very powerful action is desired, as in recent embolism of the central artery), first, on account of cleanliness, as the rubber massage cup can be sterilized; second, more uniform vibrations are obtained; and, third, it is less distasteful to the patient.

We have for the past year employed a rubber cup massage handle which receives its power from the Victor transformer No. 2 and the Pynchon pump attachment. The nipple of the pump should be at a point two-thirds distant to the right, when we obtain vibrations or alternate compression and suction. The force or gentleness of the stroke is also regulated by thumb pressure over the hole in the handle. Great care should be exerted that neither the length nor the amount of the stroke causes any discomfort. In fact, the slower the stroke the better it is. We obtain the best results with 50 to 150 vibrations per minute. With the transformer and pump attachment the length of the stroke varies from 0 to 1¼ inches, and the length of the stroke desired can be selected by a gauge attached to the crank pin. The rapidity of the piston stroke varies from 30 to 600 vibrations per minute. (I had a large size modification made of this, by which greater force may be obtained, which I believe is commonly sold with the machine). Suction and release with as long a movement of the piston as possible, in order to pull the eye in and out of its socket as far as can be, give the best results. The suction and release are used for about one-half minute, the eye looked at and, if no evidence of hemorrhages in the anterior chamber be found, used again for about a minute, the eye examined again and repeated for about one minute. On the next day the treatment may be given again if necessary, but in many cases the adhesions come away, leaving some of the pigment layer of the iris on the anterior capsule. The pupil becomes round and in an hour or so is found to be fully dilated under the influence of atropine.

There have never been any evil results, even when hyphema has occurred. I would, however, hesitate to use it when there is evidence of implication of the ciliary body and the chorioid, i. e., when there is minus tension, for the fear of producing a detachment of the retina or chorioid, or intraocular hemorrhage. However, I have never had these accidents happen, even under the most strenuous treatment, such as have been given in digital and suction pump massage, as used for embolism of the central artery or in numerous cases of glaucoma and in optic nerve atrophy. The eyeball is quite resilient and, under the effects of external pressure, may be dented in or forced back into its socket and by suction pulled forward, the cornea drawn out and the shape of the globe temporarily changed. The cornea, being more elastic than the sclera, is more changed and pulled away from its base, thereby drawing the ciliary body and iris away from the lens, the lines of force being not only directly forward but to one side as well. Hence, if the iris be attached at any part of the lens, the force tends to tear it away and thus relieve the adhesion.

It is well known that *glaucomic tension* may be reduced by rubbing the eyeball. Instrumental massage is more radical and more effective.

Ophthalmoscopic observation of the effects of massage in the fundus of the eye, in cases of embolism, showed that a pronounced hyperemia of the optic disk and dilatation of both arteries and veins immediately followed the procedure. This led to the idea that the nutrition of the optic nerve and retina, in some cases of *optic nerve atrophy,* could be improved and so it is in selected cases, but they must be appropriate for this treatment.

I claim that partial primary optic nerve atrophy, that atrophy consecutive to optic neuritis and chronic retinitis, can be checked, the nutrition brought back to the nerve, the discs made to look more normal, the visual acuity and the fields greatly enlarged and the patient preserved as a useful member of society in the greater majority of cases. But the diagnosis of primary atrophy or partial degeneration of the optic nerve fibres at the ocular end of the nerve must be assured before a favorable prognosis can be given. One surely cannot theoretically expect any effect upon the visual tracts or centers from an oscillation of the eyeball, a stretching and vibration of the optic nerve, which cannot possibly extend further than the apex of the orbit. The same may be said of the local effects of electricity, for these are peripheral treatments.

Fourteen are the few cases reported by the author of optic nerve atrophy that have improved under treatment, and in these the improvement is ascribed mainly to the betterment of the nutrition of the retina and optic nerve by the electricity and massage. Improvement or cessation of the loss of vision can only be hoped for in partial primary atrophy or that following papillitis, and the diagnosis of these conditions must be assured before any results can be hoped for by such procedure. The treatment should be thoro and long continued for at least one year. It must be given with proper apparatus by competent hands. Two recent, not yet reported, cases are the following:

Optic nerve atrophy consecutive to pansinusitis, especially spenoidal disease and possible fracture of the skull. Mrs. M. C. B., aged 38. Failing vision three years. Right, vision, close, 6/40; left, equal to light perception below and to right-practically blind. Visual field, right, hemianopsia to temporal side.

Treated since Dec. 29, 1919, with relief of nasal condition by submucous resection, opening of sphenoids, ethmoids and both maxillary antrums. Vision gradually diminished, when, as a last resort, massage and high frequency were used to eyes, commencing Oct. 5, 1920. She had gained twenty pounds as a result of improvement of the general health, following the nasal operations. Wassermann negative, occasional albumin in urine, no diagnosis of nephritis.

After several courses of ocular massage, possibly thirty treatments in all, the vision of the right eye increased to 6/12, the left remaining the same, altho in both eyes the circulation of the optic nerve and retina was improved.

Simple optic nerve atrophy. M. H. K., aged 40. All four laboratory tests negative; physical examination negative. Teeth: focal abscesses and pyorrhea. Seen Jan. 6, 1921. Teeth removed. Vision: Right, 6/60; left, 6/6. Visual acuity: Left, contracted to a circle of 50° for form, to 20° for red. Color absent in the right eye, the form field of which was contracted to about 20°.

Six weeks afterwards the form and red field of left was normal; the right form field returned to normal and the red field to from 20° to 30°. Vision: Right, 6/15; left, 6/5.

Occasion has not been afforded me for treatment of *retinitis pigmentosa* by massage, except one case which is now under treatment, too recent for a report. Altho in previous years I have observed a number of these cases and in Army service a proportionately larger number, yet no new cases, except the one above referred to, have been seen during the past two years in private practice. But theoretically, as this disease is essentially a nutritional disease of the retina, with peripheral consecutive atrophy of the nerve, any increase in its nutrition may effect improvement of function and hence it is herewith recommended for trial to anyone who may have the opportunity.

The treatment of ocular diseases by means of electricity and massage has been sadly neglected by the regular practitioner and greatly abused by the charlatan. A warning must be given as to the indiscriminate use of massage of the eye. It has been in the hands of quacks and osteopaths and much damage has been done thereby. Electricity is only a placebo in the hands of empirics. Properly used it can be of incalculable benefit in many cases. I have solved to my own satisfaction the certain points (supra) as to electrical and massage applications directed to the eye.

In closing, I may say that these axioms have been for sometime more or less accepted, but I had to prove them for myself before I got faith, and this is what each individual will surely have to do before he achieves confidence in these valuable therapeutic adjuvants, as it is well known that these agents have been given extravagant claims by irregulars and even by otherwise qualified enthusiasts. Anybody making a contribution of this kind is placed in the position of the reporter who sends in "news which is important, if true;" others must go into this before any stock is taken in the electrical and massage treatment of atrophies of the retina and nerve.

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HYGIENE OF THE EYE.*

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In announcing the subject of this paper to the program committee, we thought we had selected a topic that would be fairly specific. But after spending some little time in preparing, we find our subject is so general that we must offer apologies for coming before a scientific body with a matter so general in its outline. There has been so much discussion of recent years on the subject of hygiene and so much is being written, that it occurred to us a discussion of the topic announced would result in some benefit to this association.

For about seven years we have had occasion to make observations on a goodly number of individuals, whose usefulness has been considerably impaired by some ocular defect. These observations have come with such force at times, that they have served almost as a burden, which we as physicians are expected to carry. It is our duty to inform the people we serve, as much as possible how to conserve the normal function of their eyes.

One author tells us that at least one-fourth of all the inhabitants of Europe and America are more or less handicapped by defective vision. Among the defects causing rejection for military service in our recent war, the eyes stood third in importance with a percentage of 10.65 rejected. Bones and joints come second with 12.35, while heart and blood vessels stand first with the percentage of 13.07. Many of these defects could very likely have been prevented.

The troubles that affect the eye we shall classify under two general heads: (a) hereditary and (b) acquired. Under the hereditary ones that affect the individual more frequently would be the imperfectly shaped eyeball, giving rise to errors of refraction. It is generally understood that a new born babe is hyperopic. As it advances in years it becoms more and more able to view objects that require accommodation.

The great Helmholtz, who invented the most useful of all optical instruments, tells us he would immediately discharge any laboratory assistant who would manufacture an instrument for the laboratory so uniformly imperfect as is the human eye. He reached this conclusion after learning how really few eyes are absolutely normal.

It would be impractical to suggest wearing glasses in infancy or with little children, except in cases where the defect is so great as to occasion squint. In such cases the babe should be refracted as early as six months, because the sooner the error is corrected the better is the outlook for preventing the development of strabismus.

As children grow older they will begin to show whether they are suffering with refractive errors in various ways. Because of the elasticity of the crystaline lens and the activity of the ciliary muscle in young people, we are often at a loss to know whether a child is really afflicted with a refractive error. It is an everyday occurence in the practice of ophthalmology[2], in examining children whose visual acuity is normal or even above the normal to find a gross error requiring a strong lens to correct. This error can be determined only by completely relaxing the ciliary muscle with atropine.

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*Read before the Twenty-Seventh Annual Meeting of Utah State Medical Association, Salt Lake City, Utah, Sept. 13-15, 1921.

There are times when the ciliary muscle has become hypertrophied thru its repeated efforts at contracting the lens. Such a case can accommodate for many emergencies, but is doing so at the risk of overtaxing the nervous system. In such an instance it will also be necessary to make use of the case history to aid one in determining whether a child is laboring under some strain due to defective vision.

Some of the symtoms that should direct one to a painstaking examination of the eyes are painful eyes, spasms of the lids, itching, smarting or watering of the eyes. congestion, photophobia, frowning, blurred vision. The number of reflex or general symtoms caused by eye strain is almost legion. Here are some of them: Headache, often with nausea, feeling of exhaustion and weakness, indigestion (sometimes constipation), dizziness, sleeplessness, neurasthenia, motor disturbances such as twitching, automatisms, stuttering, etc. lack of self-control, chorea, moral delinquency or even functional epilepsy.

In rehearsing the above symtoms it should be very apparent that we shoulder an immense responsibility and that our efforts to arrive at a correct diagnosis should be frought with much more responsibility than simply writing a prescription for nervousness or a tonic or offering the case to an optometrist, if we think it due to eye strain. It is very evident that the duty belongs only to such who have properly qualified for the work, and we as physicians should not hesitate to give our very positive opinion as to the correct procedure when a parent comes to us for advice.

Every child is entitled to the advantages that have come to our age, in the abundant knowledge that is available thru the various discoveries and inventions of modern research. We feel that one's efforts should never relax in continuing to inform ourselves on the various topics, on which it is possible to get useful and definite information, which will render us better fit to make those people more useful in life who come to us for help.

Supposing that a defect in a child's eyes has been discovered and corrected. It should not be assumed that our responsibility is ended. The child's eye is a developing organ[4], and it is often necessary to repeat the examination because of the gradual change in the structure of this developing eyeball. Every refractive error should be followed up possibly once in every two years.

Among the acquired injuries to the eye there are many which are closely related to the hereditary. In fact, some are made worse by the hereditary trouble. A child is normally hyperopic and, if it is required to use the eye for near objects requiring too much effort at accommodation and that effort is prolonged, it is likely to affect the shape of the developing eyeball as a result of the constant pull upon it by the extracular muscles. This, as you see, could make a slight defect a much graver one as years go by.

Everyone knows how a child will frown on being brought suddenly in the presence of a bright light. The retina is so tender that it should not be subjected to such injury. This is true not only in young but in adults. You will remember that quite a number of cases of blindness were reported a few years ago, due to people observing the eclipse of the sun without the protection afforded by the use of a smoked glass. The intense light of the acetylene flame is also prone to damage. Professor Pfund, of the Johns Hopkins University[5], has devised a special lens for protection against the acetylene flame. It is, however, fairly safe to use a good amber or red lens for that purpose.

The conjunctiva is subjected to about as much abuse as is any organ of the body, being exposed to all kinds of mechanical irritants in dust and dirt as well as so many kinds of infectious organisms. It must be remembered, however, that a conjunctivitis may result from uncorrected errors of refraction. And such cases would resist all kinds of local treatment until the refractive error is properly corrected.

That form of infection, known as ophthalmia neonatorum, has had so much attention that we feel it unnecessary to say anything except to suggest that one should never run the risk of assuming that a case needs no prophylaxis, when so simple a procedure as Crede suggests will dispel any doubt as to trouble developing.

We were once of the opinion that trachoma was a rare condition in our state, but during our practice we have had a number of cases under treatment for varying periods of time Seven of these people were born in Utah. When this disease reaches the stage where every little irritation to the conjunctiva develops a corneal ulcer and with the repetition of these ulcers an opacity of such degree that the patient is distinctly handicapped in his occupation, or at times incapacitated, it is important that we recognize its presence and consider means for overcoming its further spread. All trachomatous cases should be properly isolated and treated. Under proper management the disease can be fairly easily controlled.

Disease of the lid and of the lachrymal sac results in much inconvenience and deformity and can usually be prevented by proper hygienic procedure and proper prophylactic treatment at the time of an infection. Diseases of the cornea are nearly always secondary to diseases of other structures in the eye and would be prevented by correct attention to these structures. It must be remembered that syphilis will attack almost every part of the eye from the optic nerve out, and is one of the most dangerous poisons for this organ.

What can be done to prevent glaucoma is quite a question. One should remember to test for tension in all examinations of the eye and in people past forty-five years of age it is somewhat dangerous to use atropine. We must always keep in mind the possibility of saving the sight in a glaucomatous eye, if iridectomy be performed early enough.

What will happen to an eye as a result of accidental injury depends, of course, upon the kind and character of the offending substance or force. It is quite customary nowadays in all industrial plants to provide the working men with proper protection against injury. Goggles, either plain or colored according to their need, are usually supplied whenever necessary. Statistics quoted by Posey[6] show that there are 2,000,000,000 accidents annually in the United States and that 160,000 of these injuries are to the eyes.

Burns are very common and the most frequent forms are those caused by lime. Such an injury should be treated by copious irrigations with plain sterile water or salt solution, after which the raw surfaces should be kept from adhering by frequent use of sterile vaseline or mineral oil.

The question of focal infections and their bearing upon the eyes is somewhat open to debate. We have had cases where the removal of tonsils and pyorrheic teeth and the cleaning out of pus from the accessory nasal sinuses have been effective in healing corneal ulcers and other eye inflammations within a period of one week, which inflammations had resisted other forms of treatment for periods of months. It must be remembered that any focus of infection in the head is likely to cause inflammation in the eye, corneal ulcers, muscle paralyses and the like.

We have discussed very briefly the damage which may come to an individual thru not properly attending to those inherited, remediable defects in vision, which fortunately can be very easily and simply corrected, and have referred even more briefly to those injuries to which we may be subjected of the conjunctiva, lids and lachrymal sac, some of the structures of the eyeball, including some accidental injuries. We leave it to you to use your knowledge and influence in rendering such skillful service as will help to conserve and improve the vision among those who trust you and come to you for help and advice.

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FOREIGN BODY IN EYE AND ORBIT LOCATED BY FLUOROSCOPE.

E. Bradford Burwell, M. D.
ABERDEEN, WASH.

In any accident in which the eye is entered by a foreign body the really important point to be determined is whether the foreign body is in the globe or has passed thru into the orbit. As the method employed to determine this point in the case reported is one applicable to at least a fair percentage of these cases and as the method is not mentioned in the text books and is certainly not as well known as it should be, considering its ease and certainty, the following case report may be of interest.

Mr. E. F. was struck in left eye while hammering on steel. I saw him shortly after and found the following condition:

Wound of entrance in upper lid. A wound about 5 mm. long thru ciliary region, upper temporal quadrant left eye. Outer half of fundus obscured by blood. Much pain in any movement of the eye. X-ray showed a large piece of steel far back and a little to temporal side.

All efforts to remove the foreign body failed, even with the point of the giant magnet introduced as far as possible in the globe. The patient felt no pain or drawing sensation while the magnet was in action.

I was about satisfied that the foreign body was in the orbit and, stitching the conjunctiva over the wound, returned the patient to bed. Another x-ray plate showed the steel in about the same location as before the operation. It then occurred to me that the fluoroscope might decide whether the steel was in the globe or orbit and this was accordingly tried. The anterior view showed nothing on account of the density of the tissues. A lateral view was successful, however, and showed the steel very distinctly and, on requesting the patient to move his eye up and down, the foreign body was observed to make wide excursions in the opposite direction, proving beyond all question that the foreign body was at least partly in the globe and at its posterior pole probably driven in the sclera.

A beginning infection, combined with the dangerous position of the wound of entrance and economic reasons, made enucleation necessary and on section the foreign body was found half in the globe and half protruding thru the sclera into the orbit, a quarter into the outer side and a little above the optic nerve. The piece of steel was 5 mm. long by 3 mm. wide and 2mm. in thickness.

I report this case as I have never seen this method of localizing a foreign body in the eye reported and it is certainly a valuable method, particularly in communities without the facilities for accurate localizing work. The steel being so easily and clearly seen in lateral view, I think this method would be applicable to all but the smallest pieces of steel. It is easily and rapidly applied, only the usual time to relax the eyes to the darkness being necessary.

The question as to whether the steel is in the eye or orbit is settled absolutely and the antero-posterior position in the globe can be very closely determined by the amount and direction of movement. If in front of the center of rotation, the movement of the foreign body will be with the movement of the eye and the farther forward the greater will be the range of movement. If behind the center of rotation, the movement of the foreign body will be opposite the movement of the eye, as in the case reported.

USING THE FINGERS TO CURE THE LUNGS.

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It has often been said that successful treatment of tuberculosis depends to a very large extent upon the fullest cooperation of the patient. Unless the person afflicted with the disease will follow the course of living laid down for him by his physician, his chances of recovery are much reduced, but observation in thousands of cases has shown that for the best results the patient must not merely do what he is told to do, but must do it cheerfully and willingly. How to keep the patient's mind occupied with something besides thoughts of his own condition has always been a problem which now seems to have been met in many cases by occupational therapy.

Occupational therapy, speaking in a broad sense, is divided into three parts, as there are practically three parts in its remedial application. These are diversional therapy, occupational or handicraft therapy and prevocational therapy.

Diversional therapy comprises simple amusements which the patient can enjoy while still in bed. Games and puzzles which require skill in the use of the fingers and which divert the mind are all approved and have been used with success. The next step is occupational or handicraft therapy. This involves the performance of definite tasks by the patient, such as the doing of useful things with woods, beads, textiles, clay, metals and so forth. In doing these things the patient not only occupies his mind but is assisted in restoring lost and weakened function.

Prevocational training is in reality the last step in occupation as a form of treatment, for this training means that the patient is employed in doing things which lead up to definite education for some industry, trade or profession.

Since the purpose of occupational therapy is to interest the patient to such an extent in what he is doing that he will not brood over his own condition, the welcome given by patients to light tasks is evidence of the way in which this treatment fulfills its mission.

The extent to which occupational therapy has been applied is shown by a summary published in June of this year by the Federal Board for Vocational Education. According to this, in 44 hospitals, public and private, exclusively for tuberculosis patients who were ex-service men, 3,281 patients were enrolled for some form of occupational therapy or vocational training. This was out of a total of 3,929 patients who were well enough for such treatment.

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EDITORIAL

EVOLUTION OF NEW DISEASE CHARACTERISTICS.

When epidemic encephalitis first made its appearance in this country, the atmosphere was rife with speculation as to the nature of the disease. Medical history was practically devoid of any mention of the sudden appearance of an entirely new disease, such as had seemed to occur in this epidemic. There were vague statements that similar epidemics had occurred in the past following influenza, but these reports were not entirely above criticism. There was nothing in medical literature that suggested that sporadic cases had occurred. It further seems entirely impossible that a disease with such characteristic symptoms should have occurred, to say nothing of appearing frequently, without having been described in the literature, when one considers the striking symptoms. There were those who maintained that encephalitis was a sequel of influenza, and that the virulence of that epidemic was the determining factor in the production of a complication or sequel, having its seat in the nervous system. Others contended that it was an unusual localization of poliomyelitis, a new form of polioencephalitis, if you please. Yet the pathology as well as the cells in the spinal fluid differed sufficiently, so that this hypothesis was not altogther tenable. Finally it appeared that encephalitis was attacking individuals who were much older than those usually affected by poliomyelitis.

Now come Neustaedter, Larkin and Banghof (*Amer. Jour. Med. Sciences,* Nov. 1921) in "A Contribution to the Study of Lethargic Encephalitis in its Relation to Poliomyelitis" that is illuminating. They have proved in a series of inoculation experiments, conducted in the Research Hospital of the New York City Department of Health, that encephalitis and poliomyelitis are closely related, if not, indeed, identical. By injecting simultaneously the virus of poliomyelitis and serum from patients convalescent from encephalitis, the subject animal (Macacus) was always protected against poliomyelitis, whereas control animals, injected with the virus alone, were uniformily infected with the disease.

Recently thruout the state of Washington and other parts of the Northwest, an epidemic occurred, in which a new group of individuals was attacked by a disease associated with marked bulbar paralysis, sometimes associated with facial paralysis and at other times with paralysis of the extremities. Some physicians diagnosed these as poliomyelitis, and it was so heralded in the newspapers. Other physicians, especially neurologists, were inclined to regard these cases as encephalitis. It is certain that there were some cases resembling encephalitis more than poliomyelitis, and vice versa; others resembling poliomyelitis the more. It would seem to be a reasonable conclusion in the light of these premises that epidemic encephalitis is epidemic poliomyelitis which has developed new traits.

The recent war and the economic conditions associated with it have produced another very similar episode in the development of a disease. Rufus Cole (*Jour. A. M. A.,* Aug. 24, 1918), in discussing "Prevention of Pneumonia," depicts the development of streptococcus pneumonia during the epidemic of 1917 among our then recent recruits in the following manner: An epidemic of measles occurred in one of the cantonments which had unusually virulent manifestations, attributed by him to the fact that it occurred among young men who were unaccustomed to vigorous exercise and who were housed closely together in barracks. In consequence bronchopneumonia was unusually prevalent as a complication and was much more severe than had been known heretofore. It soon became evident that the streptococcus responsible for this complication had developed a virulence sufficient to attack other men without the occurrence or aid of an attack of measles. Thus we had what appeared to be a new disease, epidemic streptococcus pneumonia. In a very careful analysis of the situation he demonstrates that we did not have a new disease but an old one occurring in epidemic form which, under conditions of physical stress and crowded housing, had developed new traits.

F. E.

THE DRUG ADDICTION INVASION

The spread of addiction to narcotic drugs has reached such proportions as to furnish a real menace to the nation's health, as well as providing an enormous economic burden. Expert investigators have placed the probable number of addicts as at least two million thruout the land, and this number is said to be steadily increasing. The states and cities of the Pacific Northwest have a most vital interest in this problem, since their ports of entry provide the means for the introduction of an enormous amount of morphine and cocaine. It is well-known that these drugs are produced in huge volumes by Eastern manufacturers, shipped to Japan, whence they are distributed in great amounts to China, and smuggled back to the United States in quantities approaching that of the latter country. The Japanese themselves are almost never numbered among the addicts, but they are the villainous agencies for debauching the youth of these other nations, with deliberation and malice aforethought. It is stated that the Japanese agents distribute these drugs free of charge among the Chinese, until they become victims of the habit, after which the fatal cravings oblige them to enrich the coffers of their masters. One Japanese, who makes a business of this nefarious traffic, is quoted as saying that the United States would not be able to draft an army in future years because within ten years the drug addicts of this country would number five million young men.

The White Cross, established by the China Club of Seattle, is being rapidly duplicated in cities all over the country to fight this ever increasing danger. The influence of all people who are awake to this terrible evil must be concentrated for the passage of the Jones-Miller bill before the next session of Congress, which will prohibit the exportation of these drugs manufactured in this country and will limit the importation of the raw materials to the legitimate needs of physicians and dentists. Insistance is also to be placed on the passage of laws with teeth in them which will provide a real penalty for those hellish ghouls, known as "peddlers", who distribute these drugs among the victims at an excessive cost for small amounts of diluted drugs. The present penalty entails so small a degree of punishment and fine that it amounts merely to a license for carrying on this devilish trade. Since so large a number of these traffickers in our large cities are found among the Chinese and Japanese, it is proposed to enact a law calling for their deportation on first conviction.

The enforcement of the Harrison law has practically removed any suspicion from the medical profession from being involved in this traffic. Their interest in its suppression is that of all patriotic citizens who wish our people to progress in strength and health, instead of being enervated and debauched by these preventable means. No people of the community come so closely in contact with the deplorable results of drug addiction as do physicians. At the present time the profession takes a decidedly pessimistic and melancholy view of remedial measures. Efforts are constantly being made to devise methods of treatment which will make victims of the drug habit permanently cured. In time some method may be discovered which will be absolutely curative. The main reliance, however, in suppressing this national menace lies primarily in the prevention of its further extension. To accomplish this end every physician should exert his utmost endeavor.

PUBLIC HEALTH INSTITUTES

The public health movement in the United States has been the most active factor of recent years in improving the conditions of human living. The prolongation of the expectation of life by ten years during the last half century has been accomplished largely thru this movement. In order to attain greater results along these lines during 1921 and 1922, public health institutes are to be held under the joint auspices of the State Boards of Health and the U. S. P. H. S. in twenty-one states, including Oregon and Washington. The aim of these institutes is to bring before all workers in every phase of publc health the recent acquisitions to public health knowledge and the accepted methods of dealing with health problems The faculty of each institute will comprise many men of national reputation, authorities in their respective subjects.

The institute for Oregon will be held in Portland April 10-15, and for Washington in Spokane, April 17-22. Spokane was selected on account of its central location near Idaho and Montana, which states are not holding institutes. The list of courses to be presented at each of these institutes will cover tuberculosis, nutrition in health and disease, general communicable diseases, industrial hygiene, administrative problems, medical social work, protective social work, the delinquent, child hygiene, the management of clinics and health centers, noncommunicable diseases, sanitary engineering, rural sanitation, mental hygiene syphils, gonorrhea. In each state the director of the institute will be the state director of health.

Lecturers for the Portland meeting will include leading practitioners of that city, together with public health workers from the East. The Spokane meeting will schedule many of the same lecturers. As a result of these institutes health officers, private practitioners, nurses, educators, heads of institutions, social workers, and others concerned should be brought into closer touch with the newer aspects of public health work.

RED CROSS SEAL SALE

The annual sale of Red Cross seals is now in progress. It is necessary to recognize the importance of this sale during each holiday season, since the revenue derived therefrom furnishes the means for carrying on antituberculosis work thruout the state and nation. By reason of the communty chest movement, which has been established in some of the cities, the sale of red cross seals has been supplanted by this in the cities, where these charitable funds have been subscribed. In these instances the revenue ordinarily obtained by the sale of the seals is provided for by these community chest funds. Elsewhere the sales continue as in former years. The good work accomplished by the tuberculosis movement should be a sufficient stimulus to encourage the purchase of these seals.

MEDICAL NOTES

OREGON

Elected Mayor. At the city election last month in Creswell, Dr. T. C. Hobson was elected mayor.

Boxing Commission. Dr. Thomas Ross, of Portland, was last month appointed a member of the city boxing commission to succeed Dr. S. M. Gellert resigned, who has served during the past four years.

Dr. R. D. Burrow, who has practiced for a number of years in Texas, has located for practice at Madras.

Elected School Director. Last month Dr. J. I. Matthis, of Salem, was elected as public school director.

Dr. L. C. Melvin, who has practiced for a number of years at Livingston, Mont., has located at Roseburg for future practice.

Dr. S. H. Wise, formerly of Astoria, has located for practice in Portland.

WASHINGTON

Park Donated to City. Dr. George M. Horton, of Seattle, has donated seventeen acres of land, a portion of the family farm, as an addition to the city park system. It comprises seven blocks in the southern portion of the city.

Hospitals Consolidated. The organization in Yakima for the construction of a general hospital has effected a merger with the corporation operating the Winifred Hospital. It is proposed to build an addition to the latter institution at a cost of $150,000, the new institution to be known as the Yakima General Hospital.

Fire in Hospital. Last month a fire occurred in the Seattle Pulmonary Hospital at Riverton which threatened patients in the men's ward. The fire was extinguished without serious damage to the building, and with mild injuries to some of the patients.

Plans for Hospital. Plans have been made for the construction of a $200,000, fire-proof hospital at Olympia. It will be non-sectarian, backed by the business men of the city. It will accomodate about one hundred fifty patients.

Addition to Hospital. The hospital at Elma is being improved and will be made an up-to-date institution by the addition of another story and modern improvements.

Snohomish County Medical Society held a meeting in Everett, Nov. 1, when the following officers were elected for the ensuing year: Dr. N. P. Duryee of Everett, Pres.; Dr. E. C. Leach, of Arlington, First Vice-Pres.; Dr. A. L. Brown, of Stanwood, Second Vice-Pres.; Dr. A. J. Durrant, of Snohomish, Third Vice-Pres.; Dr. O. A. Thomle, of Everett, Sec.; Dr. C. G. Morehouse, of Everett, Treas.

Doctors Licensed for Practice. Last month the following seventeen doctors were licensed to practice in the state of Washington thru reciprocity with other states at the meeting of the medical committee held at Olympia: W. B. Banks, J. W. Elder, S. W. Hobbs, D. R. Lamb, L. L. Lamb, A. C. Leslie, Neal McLean, Jessie Maddox, R. S. Mitchell, F. T. Moore, C. M. Rosin, A. W. Swenson, H. L. Day, D. W. Arnold, Alfred Hulter, M. M. Dittebrandt.

Transferred to Letterman. Dr. L. B. Collier, of Seattle, who has been stationed at Camp Lewis for the past year as Captain, Medical Reserve Corps, has been transferred to Letterman General Hospital, at San Francisco.

Dr. F. A. Longaker, of Olympia, has gone on a seven months trip to Europe. He will pursue studies in London and Vienna.

Dr. Charles Swift, of Toledo, has located for practice at Walville.

Dr. R. A. Norris, who formerly practiced in North Dakota, has located for practice at Toledo.

Medical Wedding. Dr. J. H. Gosnell, of Seattle, was married Oct. 24 to Miss Marie Lammer, of that city. The doctor will locate for practice at Raymond.

IDAHO

State Medical Examination. The following names have been announced as receiving license to practice at the meeting of the Medical Examining Board in October, under the direction of the Director of Licenses, at Boise. Licensed by examination: M. F. Froyd, Tacoma, Wn.; R. G. Eaton, Blackfoot, Ida.; C. O. Armstrong and J. H. Einhouse, Moscow. The following were licensed by reciprocity: G. G. Verbrych, Gooding; D. E. Baird, Roundup, Mont.; A. I. Pastine, Brookline, Mass.; J. H. Crompton, Lewiston; Ethel P. Westwood, Sandpoint; C. A. B. Jensen, MacKay; W. D. Madden, Pocatello; A. C. Jones and C. D. Cowles, Boise.

Aged Patients in Asylums. The State Commissioner of Public Welfare has stirred up considerable commotion in stating that the three insane asylums are crowded with people who are feeble and infirm from old age but not insane. He claims that the county poor farms have succeeded in unloading these people onto the state, contrary to the state statutes. He claims a "clinic of physicians" will be called to examine all patients in the state institutions and weed out those who should be cared for by the county poor farms.

Named School Physician. Dr. J. R. Gray, of St. Anthony, has been appointed physician for the Industrial Training School at St. Anthony, to succeed Dr. Harshbarger who is incapacitated by ill health.

Dr. F. H. Thurston, who has practiced for several years at Coeur d' Alene, has located for practice at Lava Hot Springs.

OBITUARIES

Dr. James P. Thompson died at Yakima, Wn., Nov. 12, from septic infection, following an illness of many weeks. He was 46 years of age, born at Morning Sun, Ia. He graduated from the Physicians and Surgeons College of the University of Illinois. He practiced for five years at Corning, Ill., two years tn Montana and twelve years in Yakima. He was the first president of the staff of St. Elizabeth's Hospital.

Dr. William K. Knapp, of Hope, Ida., died Nov. 16, of arteriosclerosis at the age of 74. He was born in Steuben County, N. Y. in 1847. He served for two years in the civil war, after which he studied medicine, graduating in 1872 from St. Louis Medical College. In 1813 he began practice at York, Neb. He was elected mayor of that city and later served in the Nebraska state senate. He served for four years as professor in the medical department of the state university. Leaving that position in 1886, he became superintendent of the state insane asylum. In 1896 he entered private practice at Aurora, Neb. He was famous in that part of the country as a surgeon. In 1902 he went west for his health, locating at Hope, where he lived until the time of his death.

Dr. John W. Stoneburner, of Leland, Ida., died Nov. 18, from injuries received in an automobile wreck Nov. 9. He received internal injuries which resulted in his death. He was 58 years of age, born in Indiana. He graduated from the medical department of the University of Illinois and located for practice at Leland about twenty-five years ago. He was well known throughout that section of the state.

Dr. Lynn K. Blakeslee, of Pendleton, Ore., died Nov. 2 at the age of 64 years. He first came to Pendleton twenty-five years ago. Several years after he moved to El Centro, Calif., where he practiced until four years ago, when he returned to Pendleton.

Dr. A. D. McCraken, of Kellogg, Ida., died Nov. 11 from a gunshot wound, self inflicted. He was 38 years of age. No reason could be assigned for his action.

Dr. R. T. Story, of Burley, Ida., died at Los Angeles, Oct. 21. He had been sick for some time and had undergone several operations. He was 61 years of age, born near Santa Fe, Mo. He practiced in Cassia County for thirty years. He was a public spirited citizen and had a wide circle of friends in Southern Idaho.

Dr. G. W. H. Moore, of Northport, Wn., died at the Sacred Heart Hospital, Spokane, Oct. 31. He had been ill for a long period. He had practiced in Northport for twenty-five years and was well known thruout that district.

Dr. Joseph D. Bennett, of Seattle, died at the Sultan Hospital, Nov. 10, following a stroke of apoplexy a week previous. He practiced medicine in Michigan for many years and about twenty years ago went to Alaska, where he engaged in mining. During the past year he has lived in Seattle, but did not practice medicine.

REPORTS OF SOCIETY MEETINGS

UTAH STATE MEDICAL ASSOCIATION

REPORT OF THE TRANSACTIONS OF THE HOUSE OF DELEGATES OF THE TWENTY-SEVENTH ANNUAL MEETING OF UTAH STATE MEDICAL ASSOCIATION, HELD AT HOTEL UTAH, SALT LAKE CITY, UTAH, SEPT. 13-15, 1921.

TUESDAY, SEPT. 13, NOON.

Dr. R. R. Hampton, President, Presiding; Dr. Wm. L. Rich, Secretary. Meeting called to order by President Hampton. Roll call showed quorum present.

Moved by Dr. T. C. Gibson, seconded by Dr. Sol. G. Kahn, that the reading of the Minutes of the 1920 Meeting be dispensed with, inasmuch as they were printed in full in Northwest Medicine. Motion unanimously carried.

Report of the Secretary.

During the past year four or five of our members have moved to California and many young men have entered the profession and joined us.

Since our last annual meeting three of our members have passed to the Great Beyond, namely, Drs. Union Worthington and E. Viko of this city and Dr. R. A. Kanzler of Ogden. It will be appropriate also to mention the death of Dr. Walter R. Pike on June 11, 1921, at Provo. Dr. Pike lived in southern Utah at the time of his death and was not then a member of this Association. He, however, was its second president, having served in 1896, at which time he was superintendent of the Mental Hospital at Provo.

I should like briefly to draw your attention to the steady and healthy growth of our membership during the past few years, and for comparison will begin with the year before the war, 1913. At that time there were seven component county societies in this Association. The membership and various component county societies are indicated in the following table:

	1913	1914	1915	1916	1917	1918	1919	1920	1921
Cache Valley	16	13	11	11	10	10	13	16	20
Davis County	6	5	Suspended						
Salt Lake Co.	138	146	149	148	163	174	178	191	197
Sanpete County	11	12	11	15	16	Suspended			
Uintah County	5	5	6	6	6	7	7	12	14
Utah County	32	37	31	29	27	28	29	34	37
Weber County	29	37	43	39	34	33	32	38	50
Totals	237	255	251	248	255	252	259	291	318

This year there is a total gain of 27 over last year, a gain of 59 over 1918, and a gain of 81 over 1913, or an increase of a little over twenty-five per cent in the past eight years. During the years 1917 and 1918 many of our members were in the army. However, their names were carried on our rolls and their dues were remitted.

On Nov. 11, 1920, your Secretary was called to a conference of the secretaries of the component state associations of the American Medical Association. The meeting was presided over by Dr. Alexander R. Craig, Secretary at the Association headquarters in Chicago. About ninety per cent of all the states were represented. Among the important subjects discussed were the following: "The Value of Postgraduate Work as Conducted by the Various State Associations." Wisconsin proved to be the foremost state. They received a special appropriation for this work. A yearly program was prepared. Each County Society received a copy and was asked to select the subjects and the speakers they desired. The State University gave its support and cooperation. Projecting machines, microscopes and laboratory equipment, slides, moving pictures, mounted specimens, models, and disections and clinical material were provided for. These were taken to the various county societies and usually a two day session was held, which ended with the usual banquet. The state of Wisconsin figures it is better and cheaper to keep their physicians educated than to depend on their voluntarily leaving their practice for postgraduate work. This is all done for the "public good" and I am informed the taxpayers are very well satisfied and the politicians always have something good to talk about.

Other subjects discussed at the meeting of the secretaries were "Old Age Pensions," "Value of Full-time Secretaries," "Medical Defense as Conducted by State Associations and the Cost and Benefits and Detriments as Compared with Liability Insurance."

The subject of "Supervision of Membership in the County, State and National bodies," and the use of the data of the American Medical Association headquarters, in order that component county societies shall be informed concerning the professional character of physicians desiring membership, was strongly emphasized. This will aid members of the Board of Censors who may verify statements in an application as well as the applicant's professional career by advising with the National Secretary in Chicago.

The subject of medical legislation was discussed from many angles and I can do no better than refer you to Dr. Frederick R. Green's pamphlet which sets forth the history and the present needs of this important subject. Time and space will only permit me to add that the two days session was full of intense interest and good fellowship.

You are all aware of the earnest and intensive work performed in this state during the last session of the legislature. You also know of the load and responsibility that has been lifted from the shoulders of the medical profession as legal guardians of the public health. The laws enacted are righteous, fair and without discrimination. Their enforcement is now in the hands of the state for the betterment or detriment of the public good.

Your secretary after careful consideration recommends that for a period of two years the dues of each component society be increased to $4.00 per member instead of $3.00 as at present. This can in all probability be done without increasing the annual dues of the members. All county societies now collect $5.00 per member, and one, the largest in the state, collects $10.00 per member which should amply provide for the $1.00 increase.

Last year it was necessary to borrow money and finally dispose of Liberty bonds to clean up our indebtedness. This year our best collateral, the Consolidated Wagon & Machine Company note drawing eight per cent interest, had to be sold to meet the legislative expenses. Our reserves are practically depleted and I believe this small increase for the next two years will again put us on good financial footing.

The following officers are to be elected: President, First, Second and Third Vice-president, Treasurer, and Councilor for the Second district 3-year term.

All of which is respectfully submitted.

Wm. L. Rich,
Secretary.

Report of the Treasurer.

From Sept. 16, 1920 to Sept. 7, 1921.

Sept. 16. Balance in Bank		$ 383.97
RECEIPTS.		
From Societies Nov. 11, 1920 to Sept 7, 1921.		
Utah County Medical Society	$120.00	
Weber County Medical Society	153.00	
Salt Lake Co. Med. Society	642.00	
Uintah County Medical Society	42.00	
Cache Valley Medical Society	57.00	
From Other Sources		1014.00
November 16, 1920—Coupons Liberty Bonds	12.00	
March 23, 1921—Consolidated Wagon and Machine Co. Note—and interest to date	261.16	
September 7, 1921—Coupons Liberty Bonds	6.39	
		279.55
Total Receipts		$1677.52
DISBURSEMENTS.		
Hotel Expenses in connection with State Meeting held at Ogden	$ 29.20	
Badges for Members	30.45	
Stationery & Printing	181.75	
Stenographic Services	174.70	
Salary of Secretary and Expenses	188.90	
Salary of Treasurer and Expenses	27.50	
Expenses in re Medical Practice Act	350.00	
Insurance on Bond	2.50	
Northwest Med. for 319 Members	319.00	
Cartage on books from Public Library to University of Utah	3.00	
Total Disbursements		1307.00
BALANCE ON HAND, SEPT. 7, 1921		$ 370.52
Assets		
Balance on Hand	370.52	
Three $100.00 Second Liberty Loan 4½% Bonds with coupons attached from Nov. 15, 1921 to Nov. 15, 1942	300.00	
TOTAL ASSETS OF ASSOCIATION		$ 670.52

F. L. Peterson,
Treasurer.

Report of the Council.

The Council met in January with the Committee on Public Policy and Legislation. This committee submitted to the Council a report of the work it had done and also the work it had under contemplation. It made a request that necessary funds be appropriated to employ some competent person to look after medical legislation.

After a careful survey of the situation, the Council decided that the matter was of sufficient importance to make the necessary appropriations and accordingly did so. The amounts expended and the purposes for which they were expended will be shown in the Treasurer's report. While it left the treasury somewhat depleted, the obstacles that had to be overcome and the final results obtained clearly demonstrated the wisdom of the expenditure.

Another meeting was held in March and the necessary expenses that had been incurred were ordered paid.

Dr. Hughes, Councilor of the Third District, made a report of his visit to Cache Valley Medical Society, where he met Dr. Rees, Councilor of the First District, in an effort to straighten out the misunderstanding that had existed for some time. It is certainly gratifying to report that through the efforts of Dr. Hughes, harmony was brought in the Cache Valley Medical Society.

Tht Secretary was authorized to make the usual remittances to Northwest Medicine.

T. Catlett Gibson,
Chairman.

Report of Delegate to A. M. A.

Dr. Sol. G. Kahn, the delegate, reported that neither he nor the alternate Dr. W. R. Calderwood was able to attend the A. M. A., therefore no report was made.

Report of the Committee on Public Policy and Legislation.

This committee has to report that the bill which was endorsed by the House of Delegates in 1920 has been passed by the legislature and is now a part of the Statutes of the State of Utah. Some minor changes were made, necessitated by the creation of a Department of Registration which the Governor fostered and with which our bill had to conform.

An amendment was favorably reported by the Senate Public Health Committee which reduced the professional requirements of the various cults to a three year course until 1925, when the regular four year course will apply. This amendment finally became a part of the bill. No other changes were made and your committee was highly pleased with the result.

At this time we consider it fitting to make mention of the assistance received during the campaign. We called upon the Utah County, Weber County, Cache Valley and Salt Lake County Societies to render aid in definite tasks that were alloted to them. We called upon individual members of this Association, many of whom lived a considerable distance away, to help in the cause and in some instances on mighty short notice they were requested to rush to the Capitol to perform a political service of one sort or another. In every instance they all responded with willing enthusiasm and were successful in the undertaking proffered them. It was this enthusiastic assistance that finally led to the complete success of the entire campaign.

Having had the experience of severe political warfare, this committee is now quite ready to address the Association on matters of political importance. There is not any doubt whatever but that political influence of this Association is of paramount necessity. To those of us who have repeatedly seen and studied the active work and efforts of money and men of the other cults in the legislative halls, the antagonism which the newspapers have for us and the ready reception which the public give to quacks and advertisements, there comes a serious admonition to prepare well for the future. The fight has only begun. The present law will most assuredly be attacked at the first opportunity and from time to time we may ourselves see fit to change it.

Our individual members must all become actively interested and informed on this work and the Association itself must strive to gain an envious political influence or if we do not we will awaken to hear the crow of the conqueror. This Committee earnestly recommends a strong political policy for the future and the establishment of a political or legislative fund which will give the necessary money to carry on this work.

J. C. LANDENBERGER,
Chairman.

Report of the SubCommittee on Public Policy and Legislation.

This subcommittee was appointed to aid the Committee on Public Policy and Legislation, the proceedings of which have been reported to you by Dr. Landenberger, the Chairman of that Committee.

A feature of this new statute takes the enforcement of the law regulating the treatment of human ailments out of the hands of our former Board of Medical Examiners, made up of medical men, and places its enforcement in the Department of Registration. The interests of the people are safe-guarded, as all forms of treatment of human ailments are built upon an educational basis and no cult or creed is mentioned in the law. This statute was patterned after the Illinois Practice Act of 1917. Since its enactment here, however, because of a technicality, the Supreme Court of the State of Illinois has declared their law unconstitutional. An account of this declaration is reported in the Journal of the American Medical Association of August 20, 1921 at page 639.

I quote the last paragraph of that article: "In the opinion of the attorney general, this decision makes invalid the Illinois Medical Practice Act of 1917, and restores the act of 1899 which it repealed. The Department of Education and Registration is proceeding under the Act of 1899 until further legislation is adopted."

Mr. James T. Hammond, head of the Department of Registration for the state of Utah, told me today that the Illinois Decision affects our law in a somewhat similar manner, as the Illinois incident can be used as a precedent. "Our statutes provide," says Mr. Hammond, "that when a part of the law is declared unconstitutional, the remaining portions of that law shall stand."

This creates a peculiar situation because our Legislature does not meet in regular session until January, 1923. Mr. Hammond has referred the problem to the Governor and the Attorney General for a decision. In the meantime the Department of Registration is arranging for the usual October examinations, and as soon as something definite is known the Department will make an announcement.

Mr Hammond further says that a number of chiropractors and other irregular practitioners are urging the Department to arrest them and prosecute them.

Respectfully submitted,
JOHN Z. BROWN,
Chairman.

Report of the Committee on Scientific Work.

The By-Laws provide that this Committee "shall prepare and issue a program thirty days previous to each annual session" and, while there was a slight delay this year, owing to the present state of the printing industry in Salt Lake, the program went into the mail on August 17, in ample time to reach all of our membership. We, also after consulting with the President and the officers, sent the program with a letter of special invitation to some 350 members of the State Associations of Nevada, Southern Idaho, Southwestern Wyoming, and Western Colorado. This same letter we also enclosed to our own members.

We found ourselves so fortunate as to have an unusual number of talented guests, and took the opportunity to extend the time to a three-days session, to avoid crowding and loss of dignity. There will be two mornings devoted to clinics—which are to be "dry"—and an evening meeting, which, with one entire afternoon, will care for such papers as require lantern illustrations.

The Committee has received certain suggestions, two of which we offer here are pertinent:

1. That the clinics be held in the afternoon instead of in the morning, in order to relieve the hospitals of visitors at the time when they are the busiest.

2. That the session be held in June instead of in the fall. In regard to this matter we may say

that it has been by special request of the American Medical Association that all state meetings be held subsequent to the meeting of the national body. This is in order that necessary business may be called to the attention of the state associations before the lapse of too great a time. Next year the A. M. A. will meet in St. Louis, May 22-26. In view of the fact that many of the teachers in the Eastern medical schools desire to travel to the Yellowstone and the other National Parks during the summer, it might be possible to enhance our program by adding their names to it.

These suggestions we offer to the incoming officers for their consideration.

Also, your Committee suggests that next year the State Association hold its meetings in a moving picture theatre, because the lecturers all want to show slides and, if the meetings were held in a regular theatre, these slides could be shown without shutting out the ventilation.

Your Committee also feels that the Salt Lake County Medical Society meeting,held the night before the annual session of the State Association Convention, should be abandoned, for the reason that there are usually in the city many visitors from out of town and this is the only time in which they can see the city and be entertained. We should like to make the suggestion to the County Society that these meetings be discontinued hereafter.

In conclusion, I desire to express my very gratefut appreciation to the other members of this Committee who have, since last February, worked so well and so faithfully to bring the program to you. And we trust that the profession of Utah will find it instructive, enjoyable and profitable.

Respectfully submitted,
H. P. Kirtley,
Chairman.

Report of the Committee On Industrial Medicine.

The Committee on Industrial Medicine appointed by the Utah State Medical Association wishes to state that the year has been unusually successful, considering the fact that this is the first year of its existence. The Industrial Commission of Utah has been very fair indeed in settling claims that were legitimate. Some friction has existed between doctors and insurance carriers, but little if any friction between the doctors throughout the state and the Industrial Commission.

This Committee has tried to be fair in every way possible to all concerned. The work has been pleasant and at the same time somewhat strenuous, meetings taking place about twice a month and the last few months about every week.

The Committee feels that more physicians should become familiar with the work, thereby making the work of the Committee less laborious. We, therefore, recommend that at the beginning of the coming year's work, September, 1921, a new member with an alternate be appointed every three months to relieve the oldest member on the Committee; also, that an Eye, Ear, Nose and Throat man, with an alternate, be appointed every three months to look after this special line of work.

We recommend that the President of the Utah State Medical Association instruct the President of the Salt Lake County Medical Society to appoint the members of the committee every three months. The President of the Salt Lake County Medical Society should make his first appointments as soon as possible. The oldest member of the Committee will be chairman and will see to it that the members or their alternates attend the meetings.

We also recommend that the spirit of the work be carried along in the future as it has in the past, and that during any doctor's appointment or his alternate's appointment he or she should refrain from accepting cases to examine from the Commission where a fee is attached. We recommend this for the reason that the other members of the Society may think the Committee is making capital out of their positions, and futhermore we wish the Industrial Commission to feel perfectly free to call upon the Committee without feeling under obligation to it.

We cannot too strongly emphasize the fact that newly appointed members do anything and everything to maintain harmonious relations between the Industrial Commission and the Utah State Medical Association.

Ernest Van Cott,
Chairman.

Report of the Committee On Necrology.

Since the last meeting of this Association the scythe of the grim reaper, Death, has cut down five of our esteemed members, leaving us with saddened feelings of regret, and the community in which they lived and practiced with sorrow and heartache for their departure, and their families and friends bereaved and grief-stricken.

DR. AMASA S. CONDON.

The first to go was Dr. Amasa S. Condon, of Ogden, who died Jan. 17, 1921. Dr. Condon was born in 1849 and was graduated from the Marion-Sims College of Medicine, St. Louis, Missouri, in 1892. Two years later he came to Utah, locating in Ogden, where he practiced until his death. He was one of Ogden's finest physicians, a man who went when he was called, regardless of the difficulties entailed in reaching his patients (and in the days before the automobile was perfected this was a matter of no small importance). In addition to his being a splendid physician, he was a poet of considerable ability, and in this way has left to his family and friends a legacy they will always appreciate. Dr. Condon served his country with honor in the Spanish-American War.

DR. REINHOLD A. KANZLER.

Dr. Reinhold A. Kanzler, of Ogden, died Feb. 17, 1921, just one month exactly after the death of Dr. Condon. He was ill only five days of meningitis, and buried Sunday, Feb. 20, in Mountain View Cemetery under the Auspices of the Masonic Order. Dr. Kanzler was born Jan. 23, 1883, at Kearney, Neb. He graduated from the Kearney High School in 1901 and entered the medical department of the Northwestern University, from which he graduated in 1905. In Sept. 1906, he married Miss Ella Mack Roby, of Ohio. He voluntarily enlisted in the great war in 1918, finally winning the rank of captain in the medical corps. He returned to his private practice in Ogden after an honorable discharge in 1918.

Beside being a member of this State Medical Association, he was a member of the American Medical Association and the Weber County Medical Society. He was also a member of the American Legion, organizer and major of the National Guard Medical Unit, belonged to the Unity Lodge No. 18, Free and Accepted Masons, and to the Knights of Pythias, founder and director of the Weber County University Club, Chairman of the Athletic Committee of the Ogden Stock Show, doner of gold medals and trophy for the Ogden High School annual competitive drills. He is survived by a wife and children, father, mother and six brothers and sisters, most of whom were at his bedside when the end came.

DR. UNION WORTHINGTON.

Dr. Union Worthington died May 30, 1921, at Santa Monica, Calif. of tuberculosis after an illness of nearly a year. He was brought to Salt Lake and buried in Mount Olivet Cemetery on June 4, 1921. Dr. Worthington was born in Danville, Ky., in 1862 and graduated at Center College, Ky. in 1883. In 1886 he graduated with a medical degree from Tulane University, New Orleans, La. The following year he went to Colorado on account of his health and during the years 1889 and 1890 was assistant demonstrator in the Gross Medical College, Denver. He then went to the University of Pennsylvania for a two-year postgraduate course, after which he came to Salt Lake City and became county physician in 1893. He became a member of the Staff of St. Mark's Hospital in 1898 and in 1910 was made chief consultant of the staff, a position he held up to the time of his death. For the last ten years he has been one of the surgeons for the Utah Copper Company and the American Smelting & Refining Company.

In June 1901 Dr. Worthington married Miss Clara Colton, by whom and his two sons, he is survived. For years he was a member of this Association, the County Medical Society of Salt Lake County and the A. M. A. He was also a member of the Masonic fraternity and of the Country Club. In losing Dr. Worthington, the medical fraternity of Utah feels that it has lost one of its most valued physicians. He was well known and highly esteemed by a large circle of friends who mourn his untimely death. He was well known and most favorably so thruout the intermountain country.

DR. WALTER RANDALL PIKE.

Dr. Walter Randall Pike died at St. George on June 10, 1921. The funeral services were held in the Provo Tabernacle on Sunday, June 14, 1921, under the auspices of the Story Lodge No. 4 of the Masonic fraternity. He is buried in the city cemetery at Provo, Utah. He was born at Potter Heigham, County of Norfolk, England, on June 7, 1848. In the early '60s he came to Utah and helped to fight the Indians. In the early '70s he took up the study of medicine, graduating from the Burlington, Vermont medical college, and taking a postgraduate course at the University of New York. His first years of practise were here in Salt Lake, being associated with the late Dr. Benedict. Later he removed to Provo, where he became first medical superintendent of the State Mental Hospital. After leaving that institution he remained in Provo in general practice, serving a number of years as city and county physician. In 1892 he was a member of the Utah Legislature and introduced many bills relating to medicine and pharmacology. The last years of his life were spent at St. George, Utah.

Dr. Pike was the second president of the Utah State Medical Association, which was during the year 1896. He was a sportsman and a great lover of horses. It was by his thorobreds that he was enabled to visit the sick in a large area of southern Utah, when railways were not established and the auto was unknown carrying his skill as a capable physician and surgeon to a wide circle of grateful patients. He was a member of the first yacht club organized west of the Great Lakes, and which had as members many of the noted men of Utah. It was said that Dr. Pike never missed a meet and could always be looked for in the leading boat. He was also a comrade of the Black Hawk Veterans.

Surviving Dr. Pike are his wife, Mrs Hannah Clark Pike, one son, three daughters and several grandchildren.

Your Committee offers the following resolutions of respect for Dr. Pike:

Whereas, the Great Power of the Universe has deemed it fitting to remove from this sphere of action our worthy and much esteemed fellow-physician, Dr. Walter Randall Pike; and

Whereas, the position which Dr. Pike held in this association as second president would make it fitting that we honor his name and show our respect and appreciation for the work he did as a physician of Utah, therefore be it

Resolved, that his work as a member of the Association and governor of its policy for the year 1896 as the President be held in grateful remembrance and appreciation, and be it

Resolved, that the loss of such a capable physician, after a life so replete with fine deeds and of such assistance to his community be recorded with our sincere sorrow and regret, and be it

Resolved, that to the family and friends we extend our sincerest sympathy in the time of their bereavement for their loved one, and be it further

Resolved, that these resolutions be spread upon the minutes of the Utah State Medical Association and a copy of same be sent to the immediate family.

DR. EINRED VIKO.

Dr. Einred Viko died July 12, 1921, in Salt Lake City of pneumonia. He was buried at Calvary cemetery after the celebration of requiem high mass at the Cathedral of the Madeleine on June 14, 1921. He was born in Christiania, Norway, on January 16, 1863 of excellent parentage and came to America in 1883. He received a classical and scientific education in Norway, and after coming to America entered the medical department of the University of Minnesota, from which he graduated in 1887 with the degree of doctor of medicine. He served an interneship in the Sisters of Mercy Hospital in Minneapolis and then did general practice in Stillwater, Minn. He came to Utah and practiced for years in Park City, filling the positions of surgeon for the Silver King and Ontario Mines, city physician for Park City, and county physician for Summit county. During the years of 1901 and 1902 he did postgraduate work in the New York Polyclinic and Postgraduate school, after which he came to Salt Lake City, where he practiced up to the time of his death.

Dr. Viko was a member of the American Medical Association, the Utah State Medical Association and the Salt Lake County Medical Society at the time of his death. He had specialized in surgery and was an earnest student, ever alert for the new thought in his profession, endeavoring always to find the truth, which he willingly imparted with conciseness and clearness of thought. He was unusually successful in his work and enjoyed the love and respect of his patients. Those of us who were associated with Dr. Viko in our work found him a true gentleman, kindly intentioned and tolerant of errors and mistakes in others, and always willing by kind words of advice to help where he could. We regret intensely that his life should have been cut short and that he should have been removed from his field of activity as he was.

He was married in 1895 to Miss Margaret Carney of Plattsburg, New York, who survives him, as does his son who is a member of our association. Six brothers and sisters are also living.

Elsie Ada Faust, M. D.
Belle A. Gemmell, M. D.
Committee on Necrology,

It was moved, seconded and carried, that the House of Delegates approve the Resolutions of Respect offered for Dr. Walter Randall Pike, that a copy of the same be spread upon the Minutes of the Association, and that a copy thereof be sent to the family.

Report of the Committee On Health and Public Instruction.

Your Committee on Health and Public Instruction has the following report to make:

We were requested at our last meeting to cooperate with the Health Committee of the State Teachers' Association in bringing about better conditions of health and sanitation in the state schools. Upon investigation we found that there was no committee in their associations that could function in that work, so we met with the Resolutions Committee at their convention in Salt Lake last December, and had them introduce a resolution creating such a committee.

This was done and their president was authorized to name the members, but he delayed doing so and repeated urgings by letter and telephone failed to get action. Finally thru other interested persons he was induced to act and a committee was named. We met with their committee last Saturday and a preliminary survey of health conditions in the schools was made, and a further meeting called for Oct. 20, at which time reports will be made and the details worked out. They have a committee of capable men, including the president of the organization, the state superintendent of schools, the superintendent of the Salt Lake City schools, the superintendent of the Ogden schools, and the state director of health education. They manifested a keen interest in the work when we finally got them together and we have hopes of getting real work done this year.

Following the suggestion made at our state meeting a year ago, there has recently been formed in Utah a central health council to serve as an advisory body to all organizations in the state engaged in public health activities. The object is to avoid duplication of expense and effort and to correlate the public health work in a way that will bring the best results. The Utah State Medical Associations will be one of the charter members of this council and will be entitled to two delegates and an alternate to take part in its deliberations, the delegates only being entitled to vote but the alternate being allowed to vote at any time in the place of an absent delegate. The meetings will be held every three months, the first one to complete the details of the organization and to elect officers to be held in October. This, we feel, will be a long step forward in Public Health work in Utah, as the one or two states that have adopted the plan are enthusiastic over the results achieved.

Respectfully submitted,
Joseph R. Morrell,
Chairman.

Moved by Dr. Joseph R. Morrell, seconded and unanimously carried that this Association appoint two members to the Central Health Council, and an alternate, which three will be expected to be at the meetings of that body, as outlined by Dr. Morrell in his report.

Report of the Committee On Arrangements.

Your Chairman of the Arrangement Committee desires to report that arrangements for the meetings, the banquet and the rooms for invited guests have all been attended to; that the Arrangement

Committee reverted back to the former custom of having M. D.'s only at the banquet. This decision was arrived at after careful consultation of the Committee, together with the officers of the Society. While we have heard one or two objections, we have heard many more approvals. We will demonstrate to you at the banquet tonight that this is the proper kind of a banquet for a medical association.

Respectfully submitted,
SOL G. KAHN,
Chairman, Committee on Entertainment and Arrangements.

President R. R. Hampton appointed H. P. Kirtley, Joseph R. Morrell and T. A. Flood to act as the Reference Committee, and all the reports, both of the officers and the Committees, were turned over to this Committee to be gone into and reported on.

President Hampton appointed Drs. H. P. Kirtley, Ernest Van Cott, and F. H. Raley as a Nominating Committee for the election to be held Sept. 14.

The Secretary announced that Dr. Alfred C. Reed, official representative of the California State Medical Association, (which Association had asked us to invite him to be present at a meeting of the House of Delegates to speak with reference to the amalgamation of the Western States—California, Washington, Oregon, Nevada, Idaho and Utah), was here in Salt Lake and that the House of Delegates had planned to give Dr. Reed the full time of the noon meeting, Sept. 14, if it met with the approval of the House.

Moved by Dr. John Z. Brown, seconded by Dr. J. U. Giesy, that the noon meeting of Sept. 14 be given to Dr. Reed. Carried.

EVENING SESSION, SEPT. 14, 7 O'CLOCK.

President R. R. Hampton in the chair. Minutes of noon meeting of Sept. 13 read. Moved by Dr. Mills, seconded by Dr. John Z. Brown, that the minutes be approved and ordered filed. Carried. Roll call of delegates; quorum present.

President Hampton announced that the main order of business was the annual election; that a President, First Vice-President, Second Vice- President, Third Vice-President, Treasurer, and Councilor for Second District, 3-year term, were to be elected.

Drs. Ernest Van Cott and J. U. Giesy were appointed tellers. Dr. P. W. Allison of the Cache Valley Society was seated in the House of Delegates in place of Dr. Rees.

The following officers were there duly elected:

President..............Dr. A. C. Behle, Salt Lake.
First Vice President..Dr. Frank K. Bartlett, Ogden.
Second Vice-President..Dr. George E. Hyde, Provo.
Third Vice-President..Dr. L. C. Snow, Park City.
Treasurer...........Dr. F. L. Peterson, Salt Lake
Councilor Second District
3-year Term....Dr. R. R. Hampton, Salt Lake

with the following hold-overs:

Secretary..............Dr. Wm. L. Rich, Salt Lake
Delegate to A. M. A...Dr. Sol G. Kahn, Salt Lake
Alternate Delegate to
A. M. A. ......Dr. W. R. Calderwood, Salt Lake
Councilor, Third District..Dr. E. G. Hughes, Provo
Councilor, First District..Dr. G. L. Rees, Smithfield

Unfinished Business

Moved by Dr. F. M. McHugh, seconded by Dr. Ernest Van Cott, that the dues of the Utah State Medical Association be increased from $3.00 to $4.00 a year. Carried unanimously.

The President instructed the Secretary to notify the component county societies of the action of the House of Delegates in regard to dues.

Moved by Dr. T. A. Flood, seconded by Dr. Sears, that the next meeting of the Association be held in Salt Lake City.

Dr. Budge invited the Association to come to Logan.

Dr. Flood's motion to hold the next meeting of the Association in Salt Lake was put, and unanimously carried, after which Dr. Sears invited the Association to meet at the University, which matter as well as the date for holding the next meeting were left with the incoming officers to decide.

The following two resolutions were put to the House Delegates:

"Whereas, it has been demonstrated that there are many cases of tuberculosis in Utah which are unable to provide for themselves with proper treatment and care neccessary to promote recovery, and

Whereas, such cases are a menace to the lives of all persons with whom they come in contact, and

Whereas, there is at present no hospital or sanitarium in the State for the care of such cases, and

Whereas, the Federal Government and the majority of states have recognized the public health and economic value of such institutions, therefor, be it

Resolved, that the Utah State Medical Association places itself on record as recommending to the State Legislature an early establishment of a tuberculosis sanitarium.

Whereas, the conservation of life and protection of the public health is one of the most important functions of state government, and

Whereas, the administration of adequate health measures requires the expenditure of money far in excess of that heretofore appropriated for the purpose in Utah, and

Whereas, the result of such inadequate expenditure is an annual loss of many lives that otherwise might be saved with an added enormous loss, therefore, be it

Resolved, that the Utah State Medical Association goes on record as strongly urging the State Legislature to appropriate funds necessary to enable the State Health Department to efficiently perform its functions.

Moved by Dr. Kahn, duly seconded and carried, that the resolutions be received and go thru the regular channel.

NOON MEETING, SEPT. 15.

Roof Garden, Hotel Utah.

Dr. R. R. Hampton, President, called the meeting to order. Roll-call of delegates. Quorum present. Moved, seconded and carried that the reading of the minutes be dispensed with in order to save time.

The following report was made by H. P. Kirtley, Chairman of the Reference Committee.

To the House of Delegates:

Your reference Committee reports as follows:

We have read the various reports and resolutions submitted to us and would recommend their disposition as follows:

That the Secretary's report be approved; that his recommendation that the per capita assessment be raised to four dollars be adopted.

That the Treasurer's report be adopted.

That the Councilors be congratulated on their activities which have resulted in harmony among the component societies and that their report be approved.

That the report of the Committee on Public Policy and Legislation be approved and that the incoming officers of the Association be urged to appoint the strongest possible Committee to carry on this work during next year.

That the report of the Subcommittee on Public Policy and Legislation be approved and filed.

That the reports of the Committees on Scientific Work and on Arrangements be approved. We also recommend that the new committees to be appointed be asked to confer with the present members of these committees to secure their possible suggestions and ideas of improvement for next year's meeting.

That the report of the Committee on Industrial Medicine be approved. We would invite attention to the fact that this report carries recommendations as to organization of the committee and the addition of new members to serve for quarterly periods, matters which should be attended to early by the new President.

That the report of the Committee on Public Health and Education be approved. We also call attention to the necessity for the election at this time of two delegates and an alternate to the Central Health Council, mentioned by the Committee, which they recommend.

That the report of the Committee on Necrology be approved and that suitable copies of the report with a note of the action be forwarded to the families interested.

That the resolutions referring to memorializing the next legislature requesting enlarged appropriations for public health work be adopted.

That the resolution calling for a closer relationship with the State Associations of the Far West be referred to the Council for careful study and investigation and that the Council be authorized to make them part of our obligations if, in their judgment, it seems for the best interests of this Association.

All of which is respectfully submitted,

H. P. KIRTLEY,
JOS. R. MORRELL,
T. A. FLOOD,
Committee.

Moved, seconded and carried that the President appoint the two delegates and alternates to the Central Health Council.

Each one of the recommendations of the Committee was taken up separately and discussed. The matter of a Committee especially to handle the Educative Work courses and the possibility of having classes in the different lines of nervous diseases, surgical work, eye, ear, nose and throat, etc., and do regular systematic work for four to six days.

Dr. Smith, of Ogden, moved that a committee be appointed to look into this matter, and President Hampton suggested that it was a part of the work of the Committee on Education, which Committee was not present at this meeting to make its regular report.

Dr. Smith suggested that Dr. Behle, the new president, appoint the Committee on Education, with the view in mind of establishing such a school, and he made a motion that the House of Delegates instruct the committee to be appointed by the incoming President to find out at the earliest possible date that is possible along the line of postgraduate instruction—a week of postgraduate instruction—so that the Committee would have something definite to do. Motion seconded by Dr. Gibson, and unanimously carried.

Moved by Dr. Hosmer, seconded by Dr. Morrell, that the report of the Reference Committee be adopted, and that the recommendations therein suggested by carried out by the new officers. Unanimously carried.

A lengthy discussion took place regarding certain lines of unprofessional work, splitting of fees, wholesale taking out of tonsils by those unfitted for the work, it being the sense of the House of Delegates that in some way the physicians in the outlying districts and the people should be instructed as to who the reliable doctors are, and that professional reliable men should go to these outlying districts to take care of this work, so that it would not be left with those unqualified to do this important work as it should be done.

Meeting adjourned.

GENERAL BUSINESS MEETING HELD AT THE CLOSE OF THE FINAL SCIENTIFIC SESSION 5 P. M. SEPT. 15.

Roof Garden, Hotel Utah.

Dr. R. R. Hampton, presiding.

Dr. Rich read the report of the Reference Committee and the same was approved by the Association, with no dissenting voice.

Drs. E. M. Neher and Warren Benjamin escorted the new president, Dr. A. C. Behle, to his new office, where he was welcomed by the outgoing president, Dr. Hampton, and by a cheer from the members.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

History of Medicine, with Medical Chronology, Suggestions for Study and Bibliographic Data, by Fielding H. Garrison, M. D., Lt.-Colonel, Medical Corps, U. S. Army, Surgeon General's Office, Washington, D. C. Third Edition, Revised and Enlarged. Octavo of 942 pages with 257 portraits. W. B. Saunders Company, Philadelphia and London, 1921. Cloth, $9.00 net.

This third edition, appearing eight years after the second, introduces interesting and important revisions. An account is rendered of the newer findings of several European investigators of ancient and medieval medicine. New matter has been added on Chinese medicine; on recent Japanese, Spanish and Latin American medicine; on the history of pediatrics, dentistry, public hygiene, military medicine and medical lexicography. One-half of the volume is devoted to the modern period under the heading "The Nineteenth Century. The Beginnings of the Organized Advancement of Science." Herein are recorded biographic sketches of the medical scientists of the past century, whose names are household words to all physicians, supplemented by numerous photographs. These sketches are not confined to deceased leaders of medicine, but include the living lights in the medical profession. In his 'Outline of History" Wells has almost nothing to say of the influence of medicine upon human progress. This volume will supply to anyone, seeking the truths of medical history, that which is lacking in histories of mankind similar to the above. There is a wealth of medical knowledge in this volume which should attract any student of medicine. Smith

Benign Stupors. A study of a New Manic-Depressive Reaction Type. By August Hoch, M. D. Late Director of the Psychiatric Institute of the New York State Hospitals, etc. 278 pp. $2.50. The Macmillan Co., New York, 1921.

We are indebted to the constructive thinking of the late Dr. August Hoch for the material of "Benign Stupors," which has been put into book form by John T. MacCurdy, of New York. Under this title recognition is given to a group, whose mental disturbance is nearer in character to the manic-depressive reaction than to dementia precox, altho catatonic tendencies and negativism are symptoms of precox type. The recognized syndrome includes emotional apathy, inactivity, catalepsy, negativism, a disorder of thinking which varies in degree and certain physical peculiarities. The word benign indicates the recovery expected, and a chapter on treatment puts emphasis in the right place as to the kind of environment and care that may best serve these patients. We properly wish to avoid extra subdivisions in mental medicine, but these chapters give their reasons well for placing benign stupors as a distinct manic-depressive reaction type. Gulick

Tuberculosis of Children. Its Diagnosis and Treatment. By Prof. Hans Much, University of Hamburg, Germany. Translated by Dr. Max Rothschild, Med. Director of California Sanatorium for Treatment of Tuberculosis. 156 pages. The Macmillan Company, New York, 1921.

Dr. Much proves human and bovine types of tuberculosis are different forms of the same family, but made so by adaptation to the host. Tuberculosis started in the first years of childhood must be cured in childhood before success can be expected from any other source. The most frequent form of tuberculosis in children is that of the glands, especially the mediastinal. The author states there can be no cure without immunity. He then goes on to describe how to bring about increased immunity by use of the x-ray, general measures, and the use of specific treatment which the author classifies as "partigens", a name derived from his so-called partial antigens, or the results of antibodies formed in combating disease, as immunity is increased. There are references to outlines of general treatment, of hygiene, sanitation, massage, x-ray treatment, etc.; and the work is concluded by an appeal to the general practitioner to watch for bronchial gland tuberculosis in early childhood and infancy and, if treating bone, joint, or other tuberculous infections later, to get at the cause which is apt to be the glandular involvment carried from infancy. Moon

Principles of Medical Practice. By George Cheever Shattuck, M. D., A. M. Formerly Visiting Physician, Massachusetts General Hospital, etc. Fifth revised edition. With contributions by other authors. 309 pages. $3.50. William Leonard, Inc., Boston, 1921.

This volume contains a great deal of valuable information on the treatment of every-day diseases. In the chapter on disorders of the circulatory system Shattuck deals with diseases of the heart, giving details of treatment in a manner that will appeal to every inquiring physician. Many suggestions are made as to details of treatment which are not found in the ordinary textbooks. Suggestions, new to many physicians, are combined in a manner immensely important in cardiac diseases. Beside chapters on other diseases by the author, there are contributions by well-known writers on tuberculosis, infectious diseases of childhood, influenza, diabetes and serum treatment of pneumonia. There is no superfluous material presented in this book. In a few words one will find the essential features of treatment for the disease under consideration. Smith

Text Book of Embryology. By Frederick Randolph Bailey, A. M., M. D., formerly adjunct professor of Histology and Embryology, College of Physicians and Surgeons (Columbia University), and Adam Marion Miller, A. M., Professor of Anatomy, the Long Island College Hospital. Fourth Edition, with 503 illustrations, 663 pp. $6.00. William Wood and Co., New York, 1921.

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scription of the subject of embryology, with additions to supplement the texts of former editions. One cannot peruse a book of this character without more or less feeling that the subject matter could be better treated. In all such works it seems to be quite the custom at once to plunge the student into a mass of details, most minute in character, instead of leading to these details by a grosser, more comprehensible description. The author truly says that often an illustration will describe better than words, and in this feature the book is most excellent. It is intended as a text-book for undergraduates and as such resembles the usual run of such works. West

Diseases of the Skin. By Richard L. Sutton, M. D., Professor of Diseases of the Skin, University of Kansas School of Medicine, etc. Fourth Edition. Revised and Enlarged. With 969 illustrations and 11 colored plates. 1132 pages. Cloth, $9.50. C. V. Mosby Company, St. Louis, Mo., 1921.

Another old friend refurbished and brought up to date, this work shows the painstaking care its author has bestowed on it in the selection of the new material added, and the rewriting of many subjects to conform with the advances made in dermatology from the research encompassed by the years since the last previous edition. The book is especially rich in illustrations, not only from the choice of subjects portrayed but also from the excellence of their reproduction. The subject is well and pleasingly covered, and as extensively as possible in a one volume treatise.

Crabtree

Essays on Surgical Subjects. By Sir Berkeley Moynihan, K. C. M. G., C. B., Leeds, England. Octavo of 253 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, $5.00 net.

These essays comprise a series of addresses delivered by the author on various occasions during the past two or three years, written in the inimitable style of Sir Moynihan. They present most fascinating reading. They are valuable as exquisite literature, even if one were not interested in the subjects discussed. The Murphy Memorial Oration, after paying one of the finest written tributes to the great surgeon, gives a review of the progress in surgery from the time of Hypocrates. This is an enlightening review of the development of the surgical art which is well worth anyone's time for reading. Most of these essays pertain to abdominal surgery and discuss features which should be the property of all Medical men. Every surgeon performing abdominal operations should read with care the address entitled, "Disappointments after Gastroenterostomy." If this essay were digested by every operator, there would be a great decrease in operations for gastroenterostomy, with a corresponding increase in successful results. Each of these nine essays is replete with interest and valuable suggestions. Smith

Injuries to Joints. By Col. Sir Robert Jones, C. B., Ch., Ch. M.; B. Sc. Inspector Military Orthopedic Army Medical Service. Second Edition. 195 pages. $2.00. Oxford University Press, London and New York, 1920.

This little book contains a summary of facts pertaining to the injuries of joints, to help in the diagnosis and treatment of the same. It is not an extensive digest of these principles but contains in a concise form the essential features of these various injuries. It is a useful book for ready reference by a man who is a master in methods of surgical treatment. Smith

Nostrums and Quackery. Articles on the nostrum evil, quackery, and allied matters affecting the public health reprinted with or without modifications, from **The Journal of the American Medical Association.** Volume II, illustrated, 832 pp. Published by the American Medical Association, 535 N. Dearborn St., Chicago, Ill. Price $2.00.

Ten years ago the American Medical Association published the first edition of the first volume of this book. A year later a second, and enlarged edition of the first volume was issued. Since that time **The Journal of the American Medical Association** has published, week by week, articles on the nostrum evil, quackery and allied matters affecting the public health. All this material has been collected and appears in the present volume.

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The Medical Record Visiting List for 1922. Contents: Calendar, Estimation of the Probable Duration of Pregnancy, Approximate Equivalents of Temperature, Weight, Capacity, Measure, etc. Maximum Adult Doses by the Mouth, in Apothecaries' and Decimal Measures. Drops in a Fluid Drachm. Solutions for Subcutaneous Injection. Solutions in Water for Atomization and Inhalation. Miscellaneous Facts. Emergencies. Artificial Respiration. Signs of Death. Hints on the Writing of Wills. Table of Signs. Visiting List with Special Memoranda. Consultation Practice. Obstetric Engagements. Record of Obstetrical Practice. Record of Vaccination. Register of Deaths. Nurses' Addresses. Addresses of Patients and others. Cash Account. For 60 patients a week, $1.75 in red or black morocco; for 30 patients $1.50; for 90 patients, with dates only $2.25. William Wood & Co., New York.

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